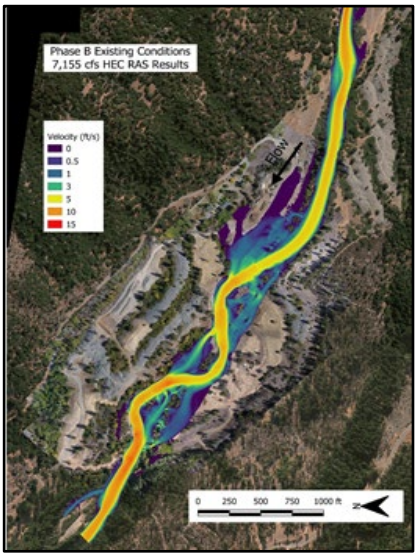
Trinity River Channel Rehabilitation Site
Chapman Ranch Phase B (River Mile 83.5–83.8)
Draft Environmental Assessment/Initial Study

DOI-BLM-CA-NO60-2020-0015-EA and CGB-EA-2020-025

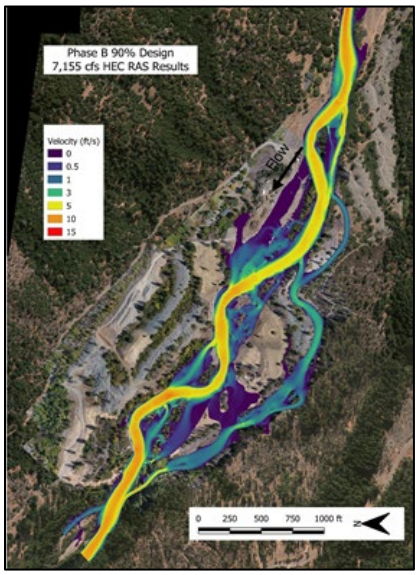
State Clearinghouse #TBD

May 2020

Chapman Ranch Current Conditions (post-Phase A, pre-Phase B)



Existing Conditions



Design Conditions

California Lead Agency for CEQA
North Coast Regional Water Quality Control Board

Project Proponent and Federal Lead Agency for NEPA
Trinity River Restoration Program
U. S. Department of the Interior, Bureau of Reclamation

Federal Co-Lead Agency for NEPA
U. S. Department of the Interior, Bureau of Land Management

Federal Cooperating Agency for NEPA
U. S. Department of Agriculture, Forest Service

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Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile 83.5–83.8) Environmental Assessment/Initial Study DOI-BLM-CA-N060-2020-0015-EA and CGB-EA-2020-025

Project Proponent and Federal Lead Agency for NEPA

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Estimated Agency Total Costs Associated with Developing and Producing this Environmental Assessment: $78,000

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CA State Clearinghouse Number to be assigned during public review

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Acronyms and Abbreviations

A	access routes
AB	Assembly Bill
ACS	Aquatic Conservation Strategy
APE	Area of Potential Effect
Basin Plan	Water Quality Control Plan for the North Coast Region
BFE	base flood elevation
BLM	U.S. Bureau of Land Management
BoOp	Biological Opinion
C	contractor use areas
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CO_2	carbon dioxide
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
cy	cubic yard
DWR	California Department of Water Resources
EC	environmental commitment
EA	Environmental Assessment
EA/IS	Environmental Assessment/Initial Study
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	evolutionarily significant unit
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIS	Flood Insurance Study
FUP	Free Use Permit
GHG	greenhouse gas
HVT	Hoopa Valley Tribe
IC	in-channel construction
IS	Initial Study
ITA	Indian Trust Asset
LRMP	Land and Resource(s) Management Plan
MDB&M	Mount Diablo Base and Meridian
MMRP	Mitigation Monitoring and Reporting Program
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NFS	National Forest System
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
NTU	nephelometric turbidity unit
ORV	outstandingly remarkable value
PA	Programmatic Agreement
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in aerodynamic diameter

$PM_{2.5}$	particulate matter less than 2.5 microns in aerodynamic diameter
PRC	Public Resources Code
Reclamation	Bureau of Reclamation
Regional Water Board	North Coast Regional Water Quality Control Board
RM	River Mile
RMP	Resource Management Plan
ROD	Record of Decision
ROW	right-of-way
STNF	Shasta-Trinity National Forest
SLJ	structured log jams
SMARA	Surface Mining and Reclamation Act
SONCC	Southern Oregon/Northern California Coast
SR	State Route
TMC	Trinity Management Council
TMDL	total maximum daily load
TRD	Trinity River Division
TRRP	Trinity River Restoration Program
U	upland
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VE	value engineering
VQO	visual quality objective
VRM	visual resource management
WP	wood placement
WSE	water surface elevation
WSR	Wild and Scenic River
WSRA	Wild and Scenic Rivers Act
WUA	weighted useable area
X	temporary crossings

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1 INTRODUCTION AND BACKGROUND

This Environmental Assessment/Initial Study (EA/IS) for the proposed Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile [RM] 82.8–83.8) was prepared by the United States Department of the Interior (USDI), Bureau of Reclamation (Reclamation); United States Department of Agriculture (USDA), Forest Service; and USDI Bureau of Land Management (BLM), to meet the requirements of the National Environmental Policy Act (NEPA); and by the North Coast Regional Water Quality Control Board (Regional Water Board) to meet the requirements of the California Environmental Quality Act (CEQA). Reclamation is the lead agency under NEPA. The BLM is a co-lead agency for actions specific to BLM-managed lands, and the Forest Service is a cooperating agency for actions specific to National Forest System (NFS) lands under NEPA. The Regional Water Board is the lead agency under CEQA. The federal agencies worked with the Regional Water Board to analyze the potential impacts of the proposed activities under NEPA (40 Code of Federal Regulations [CFR], Section 1508.9(a)), and CEQA (California Public Resources Code Sections 21000 et seq.).

Appendix A (CEQA environmental checklist) to this EA/IS was prepared to identify the resource topics that were addressed in the *Channel Rehabilitation and Sediment Management Activities for Remaining Phase 1 and Phase 2 Sites, Part 1: Final Master Environmental Impact Report and Part 2: Environmental Assessment/Final Environmental Impact Report,* referred to hereafter as the Master EIR and EA/EIR (DOI-BLM-CA-NO60-2009-0085-EA*, Regional Water Board and Reclamation 2009;* <http://www.trrp.net/library/document/?id=476>). Appendix A is also intended to satisfy CEQA requirements.

This EA/IS incorporates by reference and is tiered from two previous joint NEPA/CEQA documents: the *Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Report*, referred to hereafter as the Trinity River EIS/EIR (USFWS et al. 2000); and the Master EIR and EA/EIR[1]. The proposed Chapman Ranch Phase B rehabilitation site (referred to as the project environmental study limit (ESL) in this EA/IS) was identified and discussed at a programmatic level in the Master EIR as a Phase 2 site. The purpose of this document is to provide a site-specific analysis of the proposed site rehabilitation activities for Chapman Ranch Phase B (referred to as the Project and as Phase B in this EA/IS).[2]

The Forest Service is considering entering into an agreement with Reclamation for implementation of the rehabilitation activities on NFS land. All environmental commitments, project design features, mitigation measures, and best management practices (BMPs) developed for this EA/IS would be incorporated, in writing or by reference, into the Forest Service authorization. BMPs developed for this project are consistent with the 2012 National Best Management Practices for Water Quality Management on National Forest System Lands[3] (Forest Service 2012; USDA, Forest Service, Volume 1: National Core BMP Technical Guide, FS-990a).

The BLM's decision to be made is whether or not to issue a right-of-way (ROW) to Reclamation pursuant to Title V of the Federal Land Policy and Management Act (43 USC 1761 et seq.) for the rehabilitation activities on BLM-administered public land. The ROW would authorize activities and access, as described in this document. In June 2019, the BLM issued a Free Use Permit (FUP) according to 43 CFR 3604 that authorized Reclamation to process and use up to 121,000 cubic yards (cy) of mineral material for restoration activities at the Chapman Ranch site as a whole, including Phase A and Phase B. Under the 2019 FUP (CACA-058542), approximately 31,000 cy of material remains unused. It is estimated that approximately 17,100 cy would be required to complete the Chapman Phase B project. Consequently, the proposed project would not require BLM to issue an additional FUP. The Trinity River Restoration Program (TRRP) would follow all environmental commitments, project

[1] For the Forest Service, these documents are incorporated by reference since it was not a party to these two NEPA/CEQA documents.

[2] Copies of the Master EIR, the 2000 ROD, and the Trinity River EIS/EIR are also available on the TRRP website <http://www.trrp.net/program-structure/foundational-documents/>.

[3] The 2012 USFS BMPs are incorporated into Environmental Commitments outlined in Appendix E.

design features, mitigation measures, and BMPs developed for this EA/IS, and these are incorporated into any BLM authorization.

1.1 LOCATION OF REHABILITATION SITES

Reclamation proposes to conduct mechanical channel rehabilitation activities on the mainstem Trinity River downstream of Lewiston Dam, as illustrated in Figure 1-1. The ESL[4] encompasses approximately 66 acres, which include 27 acres of BLM land, 29 acres of NFS land, and 10 acres of private land. Throughout this document, the terms "river left" and "river right" are used to refer to the banks of the Trinity River when looking downstream. For this project, the left bank is generally the west and south side of the river, and the right bank is the east and north side.

The Chapman Ranch Phase B rehabilitation site is located about 2.5 miles south (upstream) of Junction City, California. It is in Township 33 North, Range 10 West, Sections 19, 20, 29, and 30, Mount Diablo Baseline and Meridian (MDB&M) (Figure 1-1). The river elevation at the site is approximately 1,500 feet above mean sea level. Access to the project ESL on river left is via Dutch Creek Road, which intersects State Route (SR) 299 at Junction City. Access to the project ESL on river right is via Sky Ranch Road, which intersects with SR 299 approximately 2 miles north of the project ESL. The Chapman Ranch Phase A rehabilitation site (Phase A) is located adjacent to and downstream (north) of the project ESL. Phase A NEPA/CEQA was completed in 2018, and project construction was completed in 2019. The proposed Phase B project would work synergistically with the Phase A project to improve hydrological and ecological function and to increase the overall rehabilitated area.

1.2 TRINITY RIVER RESTORATION PROGRAM BACKGROUND

The objective of the TRRP is to restore historic river processes to the Trinity River through the implementation of the 2000 Trinity River EIS/EIR Record of Decision (ROD). TRRP intends to restore an ecologically functioning river through rehabilitation activities at multiple locations so that naturally spawning anadromous fish populations may increase to levels that existed before construction of Lewiston and Trinity Dams. The TRRP's target reach for restoration is the approximately 40-mile length of the river downstream of Lewiston Dam to the confluence of the North Fork Trinity River. In general, the TRRP's approach to channel rehabilitation is to reconnect the river with its floodplain. The TRRP's objectives and background are explained in detail on the TRRP website at <http://www.trrp.net/restoration/channel-rehab/rehabilitation-concepts/#page-part>.

The Master EIR includes a chronology of the management actions relevant to the Trinity River Basin between 1938 and 2008 (section 1.4.4, pages 1-8). Additional details concerning the legislative and management history can be found in the Trinity River EIS/EIR, and the EA/Final EIRs for TRRP projects constructed between 2005 and 2008[5]. The Master EIR (section 1.4.5, pages 1-10 through 1-15) also contains a summary of the restoration activities undertaken since the signing of the ROD and brief discussions of other watershed restoration programs and activities occurring within the basin. These documents are on file at the TRRP office in Weaverville, California, and at the Weaverville public library; and are available on the TRRP website <http://www.trrp.net>.

[4] The Environmental Study Limit, or ESL, is the anticipated geographic limit of project activities with a buffer applied for the purposes of resource identification and associated impact analyses. In addition to in-river rehabilitation/construction areas, these project activities include upland work areas, contractor use (i.e., staging) areas, unpaved access routes, and locations of pre-construction vegetation removal and other disturbances necessary to facilitate work activities. The buffer is sized as determined appropriate for local conditions, based on data (e.g., wetland habitat and wildlife surveys, information from previously-prepared cultural resource inventory reports, etc.) available at the time of its development.

[5] Hocker Flat (Reclamation and DWR 2004), the Canyon Creek Suite (Reclamation and the Regional Water Board 2006), Indian Creek (Reclamation and Trinity County Resource Conservation District (TCRCD) 2007), and Lewiston-Dark Gulch (Reclamation and TCRCD 2008)

1.3 PURPOSE AND NEED/PROJECT OBJECTIVES

The TRRP is tasked with increasing habitat for all life stages of naturally produced anadromous fish native to the Trinity River in the magnitude necessary to reach congressionally mandated goals. The TRRP's strategy is to create native fish habitat while also ensuring that habitat complexity and quantity increase as the alluvial processes of the Trinity River are enhanced or restored. The purpose of rehabilitation is to engineer a functioning hydrological and ecological situation so to perpetually maintain fish and wildlife resources (including threatened and endangered species) and the river ecosystem. The proposed rehabilitation activities at the Chapman Phase B site are needed to support the TRRP's goals of restoring fish populations to pre-dam levels and restoring dependent fisheries, including those held in trust by the federal government for the Hoopa Valley and Yurok tribes.

The Phase B project is designed to interface with the 2019 Phase A project to increase the size and improve the overall function of the restoration area. The key design objective of the completed Chapman Ranch Project would:

- Reestablish a functional, topographically complex floodplain to increase river connections at a greater range of flows and promote dynamic river processes.
- Increase in-channel habitat diversity at all flows by placing wood to interact with river flows, provide cover for fish, and increase channel complexity and groundwater retention.
- Revegetate construction-disturbed upland and riparian habitats to restore native plant diversity and fish and wildlife habitat, and provide future trees for recruitment to the River.

1.4 PURPOSE OF THIS DOCUMENT

Both NEPA (42 United States Code [USC] 4321 et seq.) and CEQA (California Public Resources Code [PRC], Section 21000 et seq.) require that governmental agencies disclose information about proposed activities that may affect the environment, evaluate the potential environmental impacts of their proposed actions before making formal commitments to implement them, and involve the public in the environmental review process. This document, a site-specific EA/IS for the proposed action at the Chapman Ranch Phase B site, has been prepared to comply with NEPA and CEQA. This EA/IS document evaluates the environmental impacts of the proposed action, recommends project design features and mitigation measures to minimize impacts, and is designed to facilitate the implementation of the project under all applicable laws.

For Reclamation, this document is tiered to the previous analysis in the *Trinity River Mainstem Fishery Restoration Final EIS/EIR* (FEIS/EIR) (USFWS et al. 2000) prepared by U.S. Fish and Wildlife Service (USFWS), Reclamation, and the Hoopa Valley Tribe in 2000.

Neither the BLM nor the Forest Service participated in the preparation of the 2000 FEIS/EIR; therefore, the analysis in this document is incorporated by reference. The Forest Service did not issue a decision as a result of the 2009 Master EIR/EA/EIR. Consequently, the NEPA analysis provided in this EA/IS stands alone and incorporates by reference the analyses in the 2009 Master EIR/EA/EIR (Regional Water Board and Reclamation 2009).

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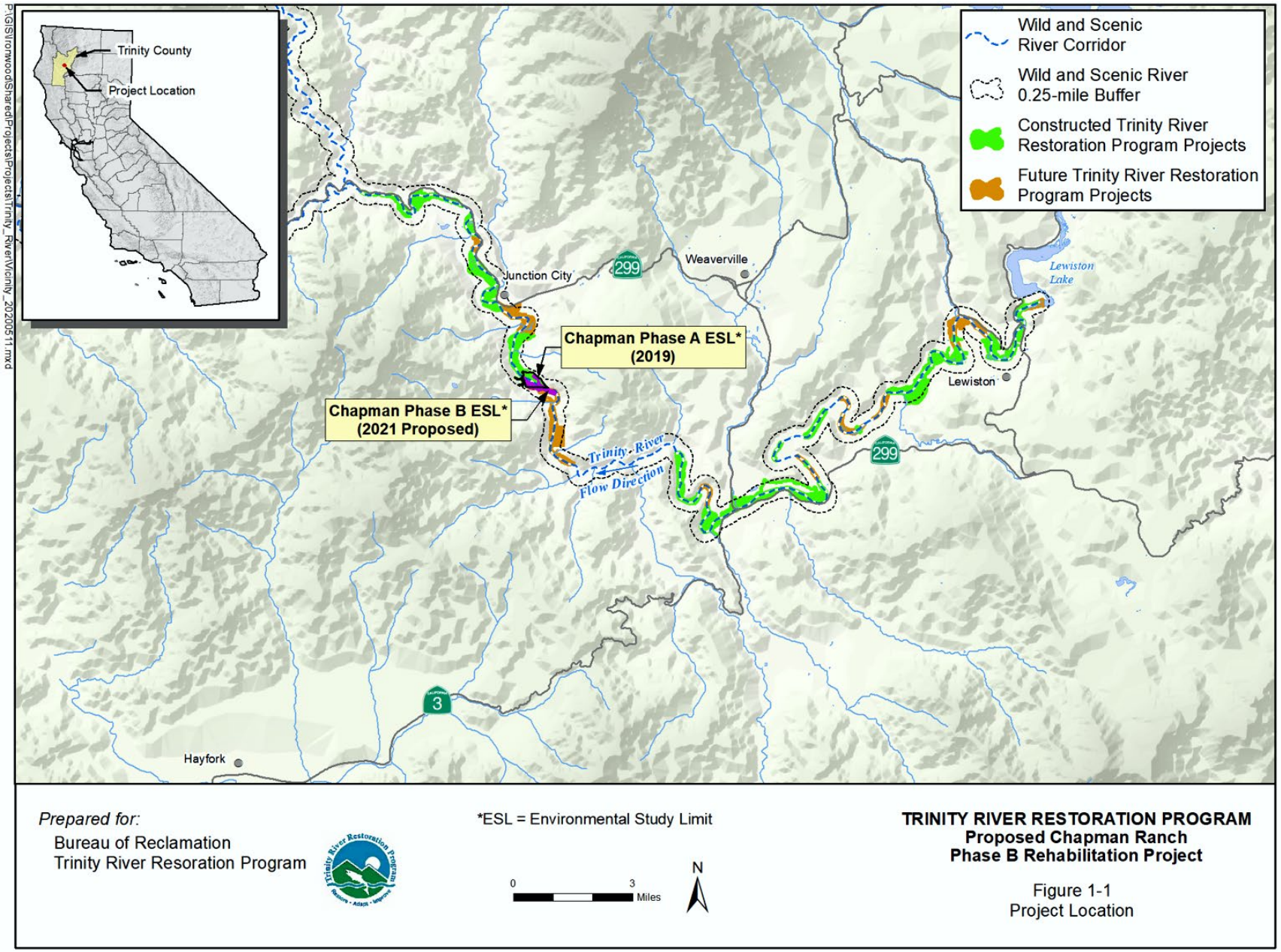

Figure 1-1. Location of Chapman Ranch Phase B Rehabilitation Site

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In 1994, the USFWS as the NEPA lead agency and Trinity County as the CEQA lead agency began the public process for developing the EIS/EIR for the Trinity River Mainstem Fishery Restoration Program. The FEIS portion of the Trinity River FEIS/EIR (published in October 2000) functions as a project-level NEPA document supporting policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing "first-tier" review of other potential actions, including the proposed action[6]. However, because the Trinity County Board of Supervisors—the CEQA lead agency for the Trinity River FEIS/EIR— had not certified the EIR portion of the 2000 FEIS/EIR, the EIR portion was not available to the TRRP and its partner agencies as a CEQA document adequate for tiering. Between 2004 and 2008, four joint EA/EIRs were completed to analyze TRRP channel rehabilitation projects. Based on the similarity of these projects and their environmental impacts and agreement that future TRRP projects would have similar impacts, a separate programmatic document—the 2009 Master EIR—was developed with the Regional Water Board as the CEQA lead agency. The EA portion of the 2009 Master EIR/EA/EIR tiers from the Trinity River Mainstem Fishery Restoration FEIS/EIR (USFWS et al. 2000a). The ROD dated December 19, 2000, for the FEIS/EIR directed USDI agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the FEIS/EIR.

A Master EIR forms the basis for analyzing the effects of subsequent projects (CEQA Guidelines, Section 15175 et. seq.). The Master EIR meets the elements required for a Program EIR pursuant to the California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, Section 15168. Therefore, the Master EIR provides programmatic CEQA level review, from which the Chapman Ranch Phase B project—a subsequent site-specific project—is tiered.

The Regional Water Board acted as the lead agency for the Master EIR (State Clearinghouse #2008032110) and the initial study portions of subsequent site-specific EA/ISs. The Master EIR provides a discussion of the existing conditions, environmental impacts, and mitigation measures required to comply with CEQA (California PRC, Section 21000 *et seq.).* In addition to addressing direct and indirect impacts associated with the proposed project and alternatives, the Master EIR addresses cumulative and growth-inducing impacts that could be associated with activities at the remaining Phase 1 and Phase 2 sites. The Regional Water Board certified the Master EIR on August 25, 2009.

Because the Master EIR provides programmatic-level review from which site-specific projects may tier, the analysis of the proposed action required under CEQA is tiered from that document. Also, the EIS portion of the 2000 FEIS/EIR functions as a project-level NEPA document used by the Secretary of Interior to support the development of a ROD that established provisions for managing Trinity River flows and as a programmatic NEPA document providing "first-tier" review of other potential actions, including the proposed action.

Under 14 CCR, Section 15177, after a Master EIR has been prepared and certified, subsequent projects that the lead agency determines as being within the scope of the Master EIR will be subject to only limited CEQA environmental review[7]. The CCR, Title 14, Division 6, Chapter 3, Section 15177, subd. (b)(2) states that the preparation of a new environmental document and new written findings will not be required if, based on a review of the IS prepared for the subsequent project, the lead agency determines, on the basis of written findings, that no additional significant environmental effect will result from the proposal, that no new mitigation measures or alternatives are required, and that the project is within the scope of the Master EIR. Whether a subsequent project is within the scope of the Master EIR is a question of fact to be determined by the lead agency based on a review of the IS to determine whether there are significant additional effects or new mitigation measures or alternatives required for the subsequent project that are not already discussed in the Master EIR.

This EA/IS provides site-specific details for the environmental impact analysis of the Chapman Ranch Phase B channel rehabilitation project and has been prepared to comply with NEPA (42 USC, Section 4321 *et seq.)* and CEQA

[6] The proposed action equates to Alternative 1, as described in Chapter 2 of this EA/IS.

[7] Federal agencies do not have the ability to conduct a limited NEPA review; the Master EIR was not a NEPA document.

(California PRC, Section 21000 *et seq*.). This EA/IS focuses only on site-specific activities for the Chapman Ranch Phase B site and serves as a joint NEPA/CEQA document developed to support agency decision making and satisfy both NEPA and CEQA requirements for public involvement and disclosure. This EA/IS contains a site-specific project description and other information required to apply for enrollment under General Water Quality Certification R1-2015-0028 (or subsequent reissued Certification) for Trinity River channel rehabilitation activities, which the Regional Water Board will consider in making its determination and approval decision.

1.5 OTHER REGULATORY REQUIREMENTS

In addition to CEQA and NEPA, the proposed rehabilitation activities at the Chapman Ranch Phase B site are subject to a variety of federal, state, and local statutes, regulations, policies, and other authorities, such as the Clean Water Act (CWA), Endangered Species Act (ESA), California Endangered Species (CESA), California Fish and Game Code, National Historic Preservation Act[8], Wild and Scenic Rivers Act, BLM's 1993 Redding Resource Management Plan (RMP) and Record of Decision (BLM 1993), and the Shasta-Trinity National Forest (STNF) Land and Resource Management Plan (LRMP) (Forest Service 1995, as amended), and the National Forest Management Act (NFMA) (Forest Service 1976).

The primary responsible and trustee agencies are the U.S. Army Corps of Engineers (USACE), USFWS, National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife (CDFW), the Regional Water Board, and Trinity County. Chapter 3, Regulatory Framework, of the Master EIR, includes descriptions of the actions required of these agencies and the applicable environmental statutes and identifies permits required for the TRRP's work on the Trinity River.

The BLM's Redding Field Office manages federal lands in the Trinity River Basin per its 1993 Redding RMP and Record of Decision (BLM 1993). The RMP discusses the general condition of natural resources in the plan area and prescribes appropriate land use management for BLM lands. BLM lands in the project ESL are allocated as "Other" in the RMP; however, the RMP was amended by the Northwest Forest Plan (Forest Service 1995) to include new land allocations (e.g., Riparian Reserves) and established requirements for compliance with the Aquatic Conservation Strategy (ACS) and other Standards and Guidelines to protect habitat for the northern spotted owl (*Strix occidentalis caurina*). A vital component of the amendment to the RMP was the establishment of Riparian Reserves along rivers and streams to protect aquatic resources. Virtually all the project ESL on the BLM and NFS lands is considered Riparian Reserves and is subject to the ACS; private lands are not included in this land allocation. The Trinity River from Lewiston Dam to Weitchpec is federally designated as a Wild and Scenic River for its fisheries and recreational values. The BLM is the federal river manager from Lewiston Dam to the North Fork Trinity River.

The Trinity Management Area section of the RMP discusses the general condition of natural resources in the plan area and prescribes appropriate land use management for lands within the plan's jurisdiction, including BLM-administered public lands at the Chapman Ranch Phase B rehabilitation site. Section 4.2.2 of the Master EIR provides additional information about the RMP. As part of its decision-making process, BLM must evaluate the consistency of the proposed action with the RMP, as amended.

The STNF manages NFS lands in the Trinity River Basin per its LRMP. The LRMP discusses the general condition of natural resources in the plan area and prescribes appropriate land use management for lands within the plan's jurisdiction, including NFS lands within the boundary of the Chapman Ranch Phase B site. Section 4.2.2 of the

[8] Section 3.1.1 of the Master EIR provides a comprehensive discussion of Reclamation's approach to compliance with the National Historic Preservation Act, specifically with respect to Section 106 consultation requirements. Appendix D of the Master EIR documents the programmatic agreement between USFWS, Reclamation, BLM, the Hoopa Valley Tribe, the California State Historic Preservation Office, and the Advisory Council on Historic Preservation.

Master EIR provides additional information about the LRMP. As part of the Forest Service decision-making process, the agency must evaluate the consistency of the proposed action with the LRMP, as amended.

This project supports specific LRMP resource goals to "provide for the protection, maintenance, and improvement of wild trout and salmon habitat," to "coordinate rehabilitation and enhancement projects with cooperating agencies involved in the Model Steelhead Stream Demonstration Project Plan and the Trinity River Basin Fish and Wildlife Management Program"; and to "identify and treat riparian areas that are in a degraded condition" (Forest Service 1995, p. 4-4, 4-18). In so doing, the project also meets Northwest Forest Plan guidelines to "design and implement fish and wildlife habitat restoration and enhancement activities in a manner that contributes to the attainment of Aquatic Conservation Strategy objectives" (Forest Service 1995, p. 4-58), as well as the riparian management prescription objective that "fish habitats will be maintained and enhanced" (Forest Service 1995, p. 4-58,4-59).

1.6 SCOPING AND PUBLIC INVOLVEMENT TO DATE

Since the signing of the 2000 ROD and efforts to begin its implementation, TRRP and other agencies have held numerous public meetings and open houses to obtain public input and provide the public with information on the overall TRRP rehabilitation activities. As part of ongoing TRRP outreach activities, TRRP staff members have met with local groups (e.g., fishing guides and mining groups) and individual landowners from the Junction City area to obtain stakeholder input and advice and to address general concerns not specific to the Chapman Ranch Phase B rehabilitation activities. Notice of all public meetings and other pertinent project information are announced in local newspapers and posted on the TRRP's website <http://www.trrp.net>. Included below is a summary of the scoping and public involvement for the Chapman Ranch Phase B site to date.

During the TRRP's November 28, 2018, evening open house in Junction City, California, for the Chapman Ranch Phase A project, the proposed Chapman Ranch Phase B project was informally discussed. Because little interest in the proposed Chapman Ranch Phase B project was expressed at that time, no formal public meeting was held for the project. Since the 2019 Chapman Ranch Phase A project was constructed, TRRP staff have shared provisional plans for Phase B with local Trinity County residents and fishermen whenever the opportunity has arisen.

1.6.1 Public Scoping

Public scoping was initiated on January 21, 2020 and ended on February 20, 2020. At the onset of the public scoping period, notices informing the public of the intent to begin the environmental review process were posted on the TRRP, Reclamation, and Forest Service websites, and at the TRRP Weaverville and BLM Redding Field offices. Hardcopy scoping notices were also mailed and emailed to local landowners and interest groups. A copy of the scoping notice is in Appendix D.

During public scoping of this project, no comments were received, and no key issues were identified by the public or stakeholders.

1.7 HISTORIC PROPERTIES AND CULTURAL RESOURCES

Federal agencies are required to consider the effects of their actions on historic properties (i.e., cultural resources that rise to a certain level of significance), in compliance with Title 54 USC § 306108, commonly referred to as Section 106 of the National Historic Preservation Act (NHPA) of 1966. The Section 106 process of the NHPA is often used to satisfy the requirements for cultural resources under NEPA. The Section 106 process includes identification, consultations, and if needed, mitigation measures for determined adverse effects.

A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. Cultural resources that meet criteria for listing on the California Register of Historical Resources (CRHR) (defined at 14 CCR § 15064.5[a]) are called "historical resources" and cultural resources that meet the criteria for listing on the National Register of Historic Places (NRHP) (defined at 36 CFR § 60.4) are called "historic properties." While the

CRHR and NRHP significance criteria are similar, the NRHP is given precedence in this analysis because cultural resources eligible for the NRHP are also eligible for inclusion in the CRHR, but the reverse is not necessarily true (PRC 5024.1[c]). Therefore, employing federal standards will fulfill both federal and state requirements for cultural resources.

Under the auspices of Reclamation, the TRRP entered into a Programmatic Agreement (PA) with the California State Historic Preservation Officer to ensure compliance with Section 106 of the NHPA. The PA ensures that tribal cultural resources were addressed in the Master EIR. The mitigation, monitoring, and reporting plan adopted by the Regional Water Board includes measures for the protection of tribal cultural resources, including tribal consultation and coordination; site evaluations; and avoidance, minimization, and other specific mitigation as necessary at the site scale.

Additional state regulations apply, including Assembly Bill 52 (AB 52), which was signed by the Governor of California in September 2014. The bill requires that California state lead agencies consult with California Native American tribes traditionally and culturally affiliated with the geographic area of a project when the tribe requests to be informed of such projects and requests the consultation to ensure that impacts to tribal cultural resources are minimized. AB 52 requirements apply to projects with a notice of preparation or a notice of negative declaration or mitigated negative declaration filed on or after July 1, 2015. The consultation requirements of AB 52 do not apply to the proposed Chapman Ranch Phase B project because the Regional Water Board adopted the Master EIR in 2009. However, the mitigation, monitoring, and reporting plan adopted by the Regional Water Board include measures for the protection of tribal cultural resources, including tribal consultation and coordination; site evaluations; and avoidance, minimization, and other specific mitigation as necessary at the site scale.

1.8 DRAFT EA/IS

Consistent with the NEPA requirements of Reclamation and the BLM, the public review of the Draft EA/IS begins when the agencies post the document to their official websites, and a notice is published in the *Trinity Journal* and *Redding Record Searchlight* newspapers (estimated May 20, 2020). The public notices will be mailed and emailed to local landowners and to interest groups. The document will circulate to local, state, and federal agencies and to interested organizations and individuals for at least a 30 day comment period to meet CEQA, NEPA, and agency-specific noticing processes (estimated ending on June 20, 2020). The formal CEQA 30-day public review period begins when the document is received by the California State Clearinghouse (estimated as May 20, 2020). The Forest Service NEPA public review begins when a Forest Service legal notice is published in the newspaper of record (the *Redding Record Searchlight*).

Copies of the EA/IS are available for review at:

- TRRP website at the following websites: <http://www.trrp.net/>,
- Reclamation's website at <https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=43664>
- BLM's website at < https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=1505406&dctmId=0b0003e8816068f4> and
- STNF's website at <https://www.fs.usda.gov/project/?project=57140>.

Please send comments to Megan Simon via email at msimon@usbr.gov or mail to:

Chapman Ranch Phase B Project Comments
C/O TRRP
P.O. Box 1300
Weaverville, CA 96093

2 DESCRIPTION OF ALTERNATIVES

This chapter describes Alternative 1 (proposed action) and Alternative 2 (no action) for the Chapman Ranch Phase B site as well as two alternatives that were eliminated from a detailed analysis in this EA/IS.

2.1 ALTERNATIVE 1

The Chapman Ranch Phase B project reach begins approximately 2.5 miles upstream of the Dutch Creek Road Bridge in Junction City. Habitat for threatened salmonids, steelhead, and other aquatic and riparian species is currently impaired throughout this reach by the legacy of dredger mining and water diversions that have altered natural variable flows. Alternative 1 has been developed to strike a balance between active (e.g., construction) and passive (e.g., flow regime changes) methods for restoring aquatic and riparian habitat while facilitating on a smaller scale dynamic fluvial geomorphic processes that existed before Lewiston Dam was completed.

This alternative consists of a number of rehabilitation activities at the Chapman Ranch Phase B site. These activities are based on those described and analyzed in Section 2.3.2 of the Master EIR (Regional Water Board and Reclamation 2009). The Chapman Ranch Phase B project activities are intended to work in conjunction with the Chapman Ranch Phase A project, which was completed in 2019, to restore habitat for anadromous fish along the entire Chapman Ranch Rehabilitation Area.

The proposed rehabilitation activities are briefly described below. Appendix D provides a more in-depth description of the design objectives and discusses each activity area in detail. Except for recontouring and vegetation removal, each activity type and area has been assigned a unique alphabetic and numeric identification and descriptive label that corresponds to the type and location of the activity area illustrated in Figure 2-1 and described in Table 2-1. These labels are used throughout this document.

2.1.1 Recontouring and Vegetation Removal

Under the recontouring and vegetation removal activities, the ground surface would be modified to reduce riparian encroachment and the risk of stranding of juvenile salmonids. To varying degrees, vegetation would be cleared and removed at all activity areas that would be subject to rehabilitation activities, except for crossings. Where recontouring is part of the proposed action (e.g., floodplain lowering), the entire site would be subject to vegetation removal, but, where possible, riparian vegetation (e.g., willows) would be salvaged and stored within the project ESL for use in subsequent revegetation efforts. Grading would be required to construct or enhance topographic features that could develop into functional riparian habitat; excavation and the placement of fill would be balanced. In addition to the activity areas that would be cleared before grading, site-specific removal of whole trees (e.g., conifers and hardwoods) would be required to enhance the safety of the worksite, reduce fuel loading, and improve local conditions for individual tree growth and wildlife. The trees that are removed would be used to construct large wood habitat structures. As illustrated by Figure 2-1, upland and contractor use areas include discrete locations where removal of vegetation is anticipated based on coordination with, and authorization by, the BLM, the Forest Service, and landowners.

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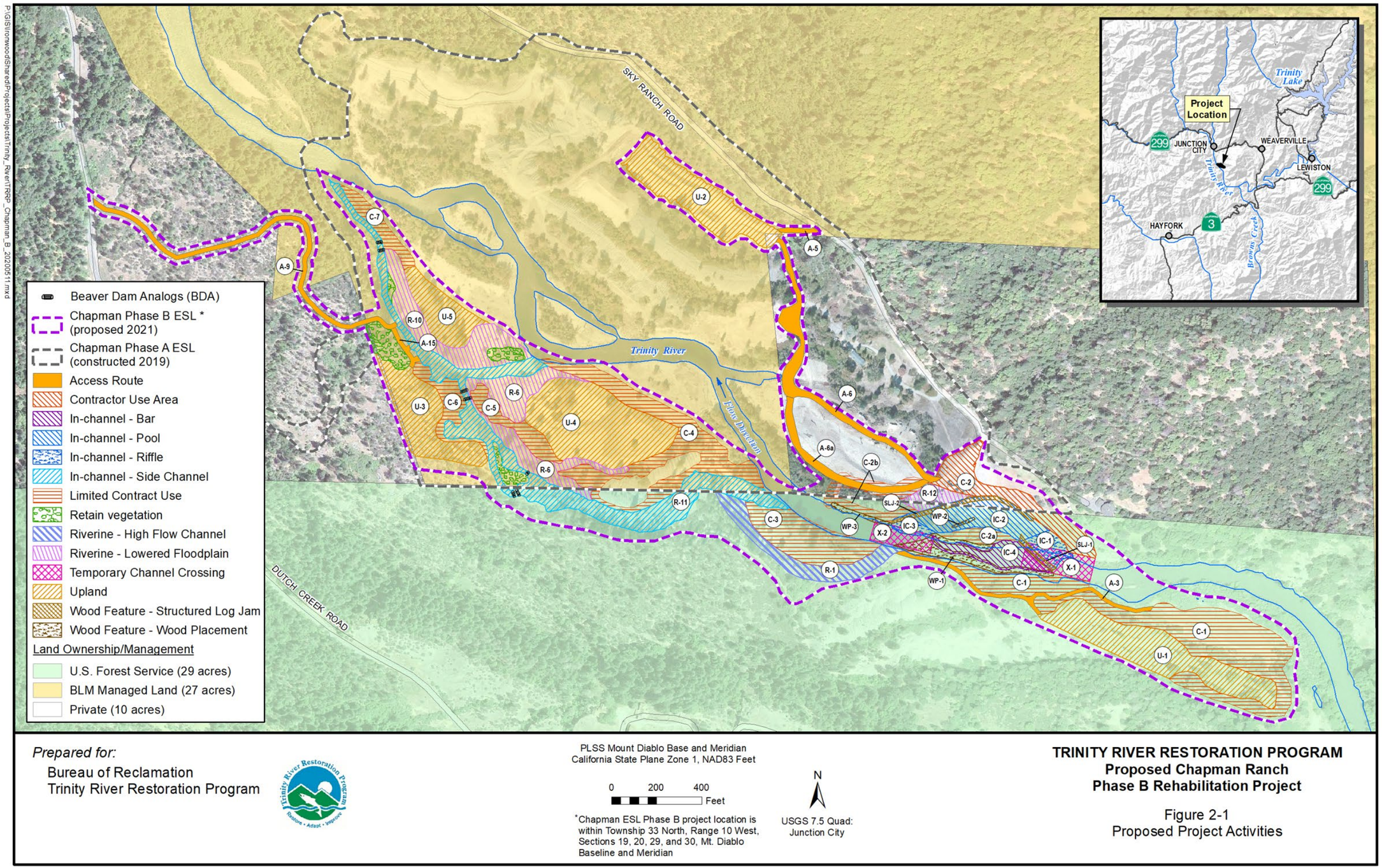

Figure 2-1. Proposed Rehabilitation Activities

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Table 2-1. Overview of Activity Areas at Chapman Ranch Phase B Rehabilitation Site

Activity Area[a]	Map Symbol	Design Feature to be Constructed	Activity/ Treatment Area[b] (acre)	Excavation (CY)[c]	Fill (CY)[c]
IC-1		In-Chanel – Riffle	0.5	2,800	1,100
IC-2		In-Channel – Pool	1.6	24,700	0
IC-3		In-Chanel – Riffle	0.2	700	200
IC-4		In-Channel – Medial Bar	0.8	0	7800
		IC Subtotal =	**3.1**	**28,200**	**9,100**
R-1		High-flow side channel	1.4	13,000	0
R-6		Lowered floodplain[d]	2.1	11,000	0
R-10		Lowered floodplain[d]	1.8	13,400	0
R-11		Side channel	4.7	47,000	0
R-12		Lowered floodplain[d]	0.5	800	0
		R Subtotal =	**10.5**	**85,200**	
SLJ-1		Structured log jam (220 ft, 38 horizontal logs)	0.1		
SLJ-2		Structured log jam (670 ft, 112 horizontal logs)	0.2		
		SLJ Subtotal[g] =	0.4		
WP-1		Wood placement	0.8		
WP-2		Wood placement	0.0		
WP-3		Wood placement	0.1		
		WP Subtotal[h] =	**0.9**		
A-3		Permanent access[d] (1,301 ft)	0.5		
A-5		Temporary access[d] (165 ft)	0.1		
A-6		Temporary access[d] (1,471 ft)	1.1		
A-6a		Temporary access[d] (914 ft)	0.6		
A-9		Temporary access[d] (1,876 ft)	0.9		
A-15		Temporary access[d] (249 ft)	0.1		
		A Subtotal =	**3.3**		
C-1		Contractor use area[d, e] – limited use	5.3		
C-2		Contractor use area[d, e] – limited use	1.7		
C-2a		Contractor use area[d, e] – limited use	0.4		
C-2b		Contractor use area[d, e] – limited use	1.0		
C-3		Contractor use area[d, e] – limited use	1.9		
C-4		Contractor use area[d, e] – limited use	3.2		
C-5		Contractor use area[d, e] – limited use	0.8		
C-6		Contractor use area[d, e] – limited use	0.7		
C-7		Contractor use area[d, e] – full use	0.6		
		C Subtotal[d] =	**15.6**		
U-1		Upland - Terraces	3.3	0	35,600.00
U-2		Upland – Spoils area	2.5	0	32,900.00
U-3		Upland – Spoils area	1.6	0	23,400.00
U-4		Upland – Spoils area	2.8	0	18,200.00

Activity Area[a]	Map Symbol	Design Feature to be Constructed	Activity/ Treatment Area[b] (acre)	Excavation (CY)[c]	Fill (CY)[c]
U-5		Upland – Spoils area	1.3	0	19,500.00
		U Subtotal =	**11.5**		**129,600.00**
X-1		Temporary channel crossing[f]	0.5		150
X-2		Temporary channel crossing[f]	0.8		150
		X Subtotal =	**1.3**		**300[f]**
		Total =	**46.1**	**113,400**	**139,000**

[a] IC = in-channel work area; R = riverine work area; U = upland fill area (fill); C = construction staging/contractor use areas; A = access roads; X = temporary river crossing; SLJ = structured log jam.

[b] Area calculated from geographical information system (GIS) data.

[c] Provided by TRRP; cy = cubic yard.

[d] Revegetation after construction.

[e] Contractor use will be limited to areas designated for tree removal.

[f] These crossings would also be used to transport woody materials (logs and/or slash) to activity areas on river left and right.

[g] SLJ materials would include 200 cy of slash.

[h] Wood placement would consist of up to 18 whole trees, 400 horizontal logs, and 700 cy of small trees, branches, and bushes.

Vegetation removed from activity areas, including contractor use areas, would be used for in-river placement. Large wood would be chipped or masticated for use as organic material to increase nutrients and enhance the water holding in revegetation areas. Activities would be completed using a variety of methods, including hand tools and heavy equipment such as excavators, bulldozers, dump trucks, and, potentially, scrapers. Where feasible, existing native riparian vegetation would be maintained to facilitate future recruitment.

2.1.2 Riverine Construction (R) – Floodplain, High and Low-flow Channels

Three types of inundated surfaces—floodplains, and high and low flow channels—would be constructed to be inundated and function at flows ranging from about 500 to more than 7,000 cubic feet per second (cfs). Activities associated with the construction of these surfaces would also enhance the type and degree of connection to the mainstem at various flows. These activities are intended to expand the surface area of the channel that could be inundated by reoccurring flows below the ordinary high-water mark (i.e., 6,000 cfs). Vegetation would be cleared as necessary, and earth would be excavated to meet design elevations for periodic inundation. Under the proposed action, construction of these features would occur at R1, R6, R-10, R-11, and R-12. See Table 2-1 and Appendix D for more details on these features.

Newly inundated surfaces would provide important rearing and slow-water habitat for juvenile salmonids and other native anadromous fish and wildlife. They would also increase the likelihood of channel migration resulting in enhanced sinuosity, thereby providing the habitat variability that was historically present and required to support rapid growth of native fishes. Removal of alluvial material and placement of log jams would be used to create lowered and tiered floodplains, side channels, and ponds. Native riparian vegetation would be planted in newly-lowered floodplains where post-project conditions would also encourage natural recruitment. Revegetation efforts would be consistent with the requirements and commitments outlined in the TRRP's Draft Riparian Mitigation and Monitoring Plan. This plan requires supplemental efforts (e.g., in-planting, weed control, irrigation) as necessary to establish riparian vegetation to meet the standard of no net loss in riparian vegetation from pre-project levels.

Up to six beaver dam analogue (BDA) structures may be built in the Area R-11 side channel complex (see Figure 2-1). BDAs will be built from pine or fir posts, arroyo and narrowleaf willow cuttings, hay; and sand, silt, clay, gravel, and cobble. BDAs provide areas of low-velocity refugia suitable for a variety of aquatic, terrestrial, and

avian species, and are intended to increase water surface elevation and inundation surfaces at low flows. The increased water surface elevation associated with BDAs at low flows would help increase success of natural riparian recruitment and plantings.

2.1.3 In-Channel Construction (IC)

In-channel construction includes those activities that would occur in the river under base-flow conditions (e.g., 450 cfs) during the in-channel construction window (July 15 to October 15). After September 15, BMPs would be in place to minimize impacts on adult coho and chinook salmon. The construction of various types and sizes of grade control structures, including construction or excavation of alluvial features (e.g., bars, riffles, and pools), would increase channel complexity through the promotion of channel migration, increased sinuosity, reduced fine sediment storage, increased coarse sediment transport, and restoration of depositional features (e.g., riffles, bars and islands) available for spawning and rearing habitat. Riffles are the shallower, faster-moving sections of a river. Gravel bars and islands provide habitat complexity as well as other ecological functions.

The preferred alternative would include a meander channel complex that spans activity areas IC-1, IC-2, IC-3, and IC-4 and is intended to create a meander sequence with a bar-pool-riffle morphology that conforms to the current TRRP flow regime[9]. Construction of this complex would increase channel length, complexity, sinuosity, and reduce slope in this section of the channel. See Table 2-1 and Appendix D for more details on in-channel construction features specific to the proposed action.

The meander complex would provide a diversity of water depths and velocities across a wider range of flows than the existing mainstem channel configuration. Activity area IC-1, IC-2, and IC-3 would form the meander channel with the pool connected to riffles at IC-1 and IC-3. SLJ-1 and medial bar IC-4 would force approximately 70 percent of flows up to 7,155 cfs into the newly constructed channel.

During the construction of in-channel activity areas, earthen berms would be left as necessary near the upstream and downstream ends of constructed features to ensure that water quality standards are met. These berms would be removed at the end of construction if the water within these contained areas is of appropriate quality for discharge to the river, or they may be left in place for removal by subsequent high flows. Alternatively, water in the constructed features may be pumped to uplands or slowly metered into the mainstem river post-construction. These techniques would ultimately reduce the amount of turbid water that would reach the Trinity River and would ensure that water quality permit requirements are met (e.g., no more than 20 nephelometric turbidity units (NTUs) at 500 feet downstream of construction).

2.1.4 Upland (U)

Excavated materials (e.g., fill) that would not be used for instream construction would be placed in upland environments as fill on terraces formerly subjected to a variety of placer mining activities. See Table 2-1 and Appendix D for more details on upland features specific to the proposed action.

Upland areas include U-1, which will be primarily a spoils pit area but may also provide coarse material for constructing project features such as riffles and point bars; U-2, which will a spoils area but will also provide up to 10,000 cy of spawning gravel; and U-3, U-4, and U-5 which will all be used as spoils sites for excavated materials. All Upland areas would be revegetated with native plants after project activities are complete.

Upland activity areas have been located to ensure that there would be no increase in the elevation of the 100-year floodplain, consistent with requirements of Trinity County's Floodplain Ordinance. These activity areas would be

[9] A description of the typical releases for river restoration can be found at https://www.trrp.net/restoration/flows/typical-releases/.

used to place excess material excavated in the construction of riverine and in-channel activity areas. The boundaries of these fill areas were defined using a Federal Emergency Management Agency (FEMA)-approved modeling process; field verification by surveyors and engineers was performed to ensure these areas would be located at an elevation above the FEMA 100-year floodplain. Within these activity areas, the depth of fill would range from about one foot near the edge to as much as 35 feet, depending on the size and location of the activity area. Fill materials would be spread in uniform layers that would blend in with the natural terrain and provide stable slopes for revegetation.

2.1.5 Detailed Master EIR Activities Described to Provide Additional Clarity Beyond that in Table 2-1 of Master EIR

Wood Features – Structured Log Jams (SLJ) and Wood Placement (WP)

Impacts associated with the use of organic (e.g., large wood, slash) and inorganic (e.g., boulders) materials were covered in the Master EIR under Sediment Management activities along with other activities that would facilitate channel construction and maintenance (e.g., excavation and placement of alluvial material in in-channel and riverine areas).

Woody material is a natural part of healthy rivers. It provides important habitat for aquatic species by providing cover from high flows and predators. The low-velocity areas collect suitable spawning materials, and woody organic materials are a food source for aquatic insects. It can also help create and maintain beneficial habitat features such as pools, islands, and gravel bars. Woody material is used to construct structured log jams (SLJs) and provide material for wood placement (WP). SLJs are key engineered features in TRRP projects that are constructed of trees, slash, earth, and rock (as ballast). WP is less permanent and may consist of individual pieces, small accumulations, and large habitat structures. All would be installed to mimic natural wood features that form under historic conditions. The primary onsite sources of wood would include upland and contractor use areas and, to a lesser degree, riverine excavation areas. Where possible, whole trees, including the rootwad, would be removed and used in the construction of SLJ and WP features. In addition, trees removed as part of clearing activities may be felled, bucked, and yarded to locations to meet size specifications. Slash generated from tree removal activities would also be incorporated into the SLJ features and wood placement. Excess slash would be chipped or masticated and used as mulch for erosion control and revegetation efforts. Figure 2-1 shows areas where WP is likely and where SLJs would be used.

A combination of SLJ and WP features would be used to strengthen highly erosive points in select activity areas (e.g., IC-3 and R-3) until vegetation is established. In addition to erosion control, these features would be integrated into the design of R and IC activity areas to provide habitat cover and structure and would slow high-flow velocities to improve aquatic habitat over a range of flows. Slash from on-site and off-site sources would be used to increase site productivity, provide effective ground cover on disturbed areas, and function as cover habitat for terrestrial organisms.

Project features incorporating large wood pieces were designed to create habitat and prevent the recapture of the existing mainstem, while simultaneously allowing the design channel morphology to evolve over time naturally. In total, up to 400 logs would be incorporated into habitat structures, in addition to 18 whole tree placements and 1,700 cubic yards of slash (see Appendix D and Figure 2-1).

SLJ features would include toe logs set into the channel bed elevation that would stabilize the toe of the channel bank to provide a foundation on which to build the key logs, slash pile, cuttings, and rock, and reduce the tendency for the toe of the bank to slump in case channel incision occurs. A layer of key logs would be installed on top of the toe logs perpendicular to flow. In some cases, it may be beneficial to place the rootwads of key logs into the flow path at a minimum of a 45-degree angle to flow. Slash would be placed under some of the key log rootwads, as well as thin layers on top of the key rootwads, before the addition of ballast and backfill. The

intended result is a sequence of cut banks, rootwad cover, and fine woody debris, providing year-round salmonid rearing habitat and better protecting the channel bank from erosion.

Because of uncertainties about the availability, types, shapes, and sizes of the wood and the planned construction methods, the exact amounts and locations of wood placement are not known at this time. Trees, treetops, and branches for use in constructing large wood structures would be obtained onsite[10] and/or opportunistically from other lawful sources (e.g., public or private lands where vegetation management activities have occurred) and delivered to the project ESL. Final WP locations and dimensions of SLJs would be determined in the field based on direction from Reclamation's field engineer.

2.1.6 Contractor Use Areas (C)

Contractor use areas would be used for stockpiling materials, staging equipment, contractor parking, and similar activities. They may also serve as transportation corridors for moving equipment and materials from one activity area to another. In this event, water would be applied to these areas for dust abatement. To support the intent of rehabilitation, the design team designated contractor use areas in locations that avoid sensitive resources. Water from onsite sources[11] would be applied to these areas for dust abatement as directed by the Contracting Officer.

There are seven activity areas that would be available as contractor use areas. One of these areas (C-2 a and b) would be a full contractor use area, where minor grading and clearing of vegetation would occur and the area would be used for staging and stockpiling of construction equipment. The remaining six areas would be limited contractor use areas, and disturbance would be minimized. The limited and full contractor use areas would be reviewed by the TRRP and construction contractor before project activities begin.

Vehicular access to three of these (C-5, C-6, and C-7) would be limited by vegetation. These limited contractors use areas would be used primarily for pedestrian access and minor disturbance associated with construction of Area R-11. Although some minor clearing and grading may be required to provide access to work in these areas, effort would be made to avoid mature vegetation to the extent practical.

Four of these areas (C-1, C-2, C-3, and C-4) would be directly associated with the construction and revegetation of riverine and in-channel activity areas (including in-channel wood features). These areas would be necessary for the temporary storage of equipment and materials (e.g., gravel, large wood, slash). Typically, these activity areas are subject to clearing and/or grading to varying degrees to ensure safe and efficient temporary work areas. These activity areas would also be used to store and stage materials (e.g., logs, boulders) at several discrete locations identified by the landowners.

2.1.7 Access Routes (A)

Temporary access routes would be constructed to connect the activity areas to the main entrance route (Figure 2-1 and Table 2-1)[12]. Access roads throughout the site support equipment access and construction within the project ESL, on both the left bank via Phase A access from Dutch Creek Road and right bank via Sky Ranch Road. Whenever possible, existing roads would be used for access, although some widening may be necessary. The total length of access roads to be utilized during Phase B construction is 1.3 miles.

There are six routes identified as discrete activity areas (A-3, A-5, A-6, A-6a, A-9, and A-15). None of these are associated with an existing route open to the public. These routes would primarily be used by a wide array of heavy equipment and other vehicles, often requiring two-way traffic. The site-specific design and use of these

[10] Appendix D, Table D-5 lists the maximum estimated tree removal for each activity area.

[11] Water pumps used in the Trinity River would conform to CDFW and NMFS screening criteria.

[12] On average, access routes would be 15-18 feet wide with pull outs 30 feet wide to allow vehicles to pass each other; typically, about every 1,000 feet. The length of route segments are listed in Table 2-1.

routes would consider factors like topography, soils, existing vegetation, and the need for future vehicle access for revegetation maintenance and post-construction maintenance. The routes would remain inconspicuous to river users and those outside of the project area, and would not be actively maintained, to comply with the Wild and Scenic River Act requirements.

Best management practices would be used to reduce the impacts of road-related sediment on the riparian and aquatic environments (see Appendix E – Environmental Commitments).

2.1.8 Temporary Crossings (X)

Two temporary river crossings (X-1, X-2) would be required. River crossings would facilitate the movement of large equipment and materials from bank to bank. River crossings would be constructed of coarse material (see Figure 2-1). Coarse material for Area X-1 shall meet specifications provided for Area IC-1. Coarse material for Area X-2 shall meet specifications provided for Area IC-3. The number of times the crossings are used would be kept to a minimum to meet turbidity requirements of the permits. The river crossings, made of clean gravel, would be graded to final design elevations or left in place to be moved downstream by high flows post-construction. Construction of fords would utilize imported clean gravel and native alluvial materials excavated from the bed and bank of the Trinity River or adjacent sources. All temporary crossings would be designed and constructed to meet the requirements for heavy equipment such as trucks and excavators. All excavated material (e.g., from lowering floodplains) would be placed on the same side of the river from which it was taken. See Table 2-1 for more temporary crossing details.

Due to requirements to retain passage for fish and boats, at least one-third of a river crossing would be submerged to a minimum depth of one foot under base flow conditions. The construction of these temporary crossings would likely require some vegetation removal on either side of the crossing within an approved activity area adjacent to the crossing (e.g., IC-1). All temporary crossings would be constructed in a manner that does not impede passage of aquatic organisms or navigability of vessels at the crossings. The general construction schedule is outlined below in Section 2.1.10.

2.1.9 Revegetation

Impacts on vegetation are anticipated in most activity areas. Unlike for other activities, revegetation is not illustrated in Figure 2-1 because it overlaps with most of the other activity areas. Most of the areas left barren after construction (e.g., spoils areas, graded features, and disturbed portions of contractor-use areas) would be planted. Still, no areas would be specifically disturbed so that they would be re-planted. The temporary access routes would be planted with conifers and madrones as part of decommissioning.

Project activities are designed to ensure that riparian vegetation, in particular, is minimally affected by the implementation of the proposed action and is replaced at a 1:1 ratio to meet CDFW's standard of no net loss of riparian area habitat within the Trinity River corridor. Revegetation would provide aquatic refugia at high flows, improve terrestrial habitat for birds and other wildlife, provide future wood recruitment, and provide future terrestrial nutrient input to the river. Revegetation efforts would emphasize actions to create conditions that promote natural revegetation via the creation of wet (riparian) conditions. These efforts would include incorporating woody material into the soil matrix Upland activity areas to enhance moisture retention.

Revegetation of riparian and upland areas would rely on a combination of planting and natural recruitment of native species, consistent with TRRP's 2016 Draft Riparian Revegetation and Monitoring Plan and the needs of the Forest Service, the BLM, and other cooperating, responsible, and trustee agencies and landowners. Native willows salvaged from activity areas during initial clearing efforts would be stored and used to revegetate activity areas; the willows would be replanted during construction to speed vegetation recovery. Replanting of affected native vegetation (e.g., shrubs, trees) would be completed after construction per a site-specific revegetation plan

prepared by the TRRP and may include watering during the first 3 years post-planting. Water for any irrigation would be pumped from the Trinity River, consistent with existing riparian water rights as made available from willing landowners, or from the river on public lands as authorized by the Forest Service and/or BLM. Post-project monitoring may indicate the need for additional irrigation and other measures to ensure successful revegetation. These measures may include weeding, in-planting, and replanting as conditions require.

The revegetation plan at the Phase B rehabilitation site would include several planting zones; each zone would have different combinations of herbaceous, shrub, and tree species. Plantings in wetland and toe zones would be herbaceous and have approximately three feet between plant centers, about 5,500 plants per acre. Plantings in willow, cottonwood, and transition zones would be sedges, shrubs, and trees and have approximately 5 to 8 feet between plant centers, with about 872 plants per acre. Plantings in upland zones would be shrubs and trees and have approximately 10 to 12 feet between plant centers with about 326 plants per acre. Willow trenches would be selectively installed, and willow cuttings would be planted at the rate of 10/linear foot. Approximately 16.5 acres would be planted with live plants, and 28 acres (much of it overlapping planted areas) would be seeded with native grasses and mulched.

Soil amendments, such as locally obtained wood grindings and slash, would be incorporated into the soil before planting, and all disturbed areas greater than 4 feet above the summer baseflow water surface elevation would be mulched with weed-free wheat straw at the rate of 2 tons/acre. Revegetation activities may start during the latter part of the construction efforts (e.g., planting and watering as appropriate) and would continue during the wet season (October through March) after final grading and site stabilization measures have been completed. Areas on the right bank are only accessible to equipment by crossing the Trinity River, so most planting there would be completed by the end of the instream limited operating period (anticipated to be September 15, 2019). Planting and seeding efforts may extend into the year following construction, depending on site and weather conditions. Herbaceous bare root material and hardwood poles would be used if planting occurs in or after November.

2.1.10 Construction Methods and Schedule

In general, in-river construction and activities other than revegetation could occur on river right between July 15 and September 15. On the left bank, work (e.g., staging site preparation) may occur year round. Revegetation activities would primarily occur in the wet months. Excavation, processing of excavated material, and placement of excess material in upland areas would occur during the in-river construction window. Floodplain excavation would occur in summer. The Chapman Ranch Phase B project is proposed for implementation in summer 2020, but revegetation efforts would not happen until after construction, likely beginning in fall 2020 and continuing through spring 2021. After site construction, maintenance activities (including efforts to maintain/enhance vegetation or riverine habitat diversity (e.g., SLJs or channel topography) may be conducted, as needed, within authorized public land use areas per the general environmental commitments listed in Appendix E. A detailed discussion of the construction methods and activities is provided in Appendix D.

2.1.11 Environmental Commitments

Reclamation, as the implementing agency for the proposed rehabilitation activities, has committed to implementing the mitigation measures identified in the Master EIR as well the 2012 USFS National BMPs later developed, if they provide a greater level of clarity or resource protection. A number of design features have been developed and incorporated into Alternative 1 to reduce or eliminate adverse effects as defined under NEPA; and are considered environmental commitments included in this alternative for purposes of the NEPA analysis. They also serve as CEQA mitigation measures that will be implemented in accordance with a project-specific mitigation monitoring and reporting program (MMRP, Appendix F).

The environmental commitments listed in Table 2-2 are fully described in Appendix E. Appendix E provides a comprehensive discussion of these commitments. In most cases, these commitments are equivalent to the CEQA

mitigation measures described in Appendix F. This approach is consistent with guidance issued by the Council on Environmental Quality (CEQ) for federal agencies in implementing, monitoring, and evaluating environmental commitments identified in EAs completed for compliance with NEPA. Throughout this chapter, these environmental commitments are identified with a unique label (e.g., EC-CU-1).

Table 2-2. Environmental Commitments

Resource	Commitments
Mineral Resources	EC-MR-1
Fluvial Geomorphology and Soils	EC-GS-1, EC-GS-2
Water Quality	EC-WQ-1, EC-WQ-2, EC-WQ-3, EC-WQ-4, EC- WQ-5
Fishery Resources	EC-FR-1, EC-FR-2, EC-FR-3, EC-FR-4, EC-FR-5
Vegetation, Wildlife, and Wetlands	EC-VW-1, EC-VW-2, EC-VW-3, EC-VW-4, EC-VW-5, EC-VW-6, EC-VW-7, EC-VW-8, EC-VW-9, EC-VW-10
Recreation	EC-RE-1, EC-RE-2
Cultural Resources	EC-CU-1, EC-CU-2
Air Quality	EC-AQ-1, EC-AQ-2, EC-AQ-3, EC-AQ-4
Noise	EC-NO-1, EC-NO-2
Public Services	EC-PS-1, EC-PS-2

2.2 ALTERNATIVE 2

Alternative 2 (no action) represents ongoing activities and operations of the TRRP and other entities involved in restoring the Trinity River except for the proposed action. Under the no action alternative, no rehabilitation activities would be implemented at the Chapman Ranch Phase B site. Other activities already being implemented in compliance with the 2000 ROD would continue to be implemented. These include:

- Implementation of the annual flow release schedule based on recommendations of the Trinity Management Council (TMC) to Reclamation; and
- Implementation of annual high flow coarse sediment (gravel) augmentation, at designated long-term sites along the Trinity River mainstem, based on recommendations of the TMC to Reclamation; and
- Implementation of watershed restoration and rehabilitation projects at other locations in the Trinity River Basin, including those funded by the TRRP, members of the TMC, BLM, and the Trinity County Resource Conservation District.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER EVALUATION

Within the general confines of the defined activity areas and rehabilitation site boundaries, the designers used models to inform themselves about the potential effects that changes in constructed topography (how the features are built—using various grades, side slope angles, and elevation on the ground) might have on how constructed features function under various flow conditions. The designers have been evaluating how these changes in design affect modeled water depths, velocities, and shear stresses under post-construction conditions and how these results might affect long-term maintenance/evolution of features. Results of modeling were used to select optimal configurations, presented as the proposed action here, for maximum aquatic habitat quality for juvenile salmonids (e.g., depth, velocity, and substrate) and to predict changes to the river and floodplain (e.g., erode, aggrade, or vegetate) under envisioned ROD flow conditions.

In addition, two alternatives were formally considered and evaluated in the Chapman Ranch Value Engineering (VE) study[13] (Reclamation 2015). The two designs were generally similar; however, Alternative 1 included a large side-channel complex on the left bank, and Alternative 2 did not. The VE study concluded that Alternative 1 would provide up to an estimated 500,000 ft^2 of additional habitat over the existing condition at a discharge of 5,000 cfs. The study concluded the cost of the additional habitat in Alternative 1 was very high, most of which would come from the left bank side channel. The final design generally combines Alternative 1 and Alternative 2, transitioning the left bank side channel into a high flow side-channel complex, resulting in less excavation, less cost, and less uncertainty.

[13] The Value Engineering (VE) study is available on the TRRP website at https://www.trrp.net/library/document/?id=2255.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION TO THE ANALYSIS

This chapter describes the affected environment at the Chapman Ranch Phase B rehabilitation site. It analyzes the potential environmental impacts associated with implementing Alternative 1 as described in Chapter 2 and Appendix D. The analysis includes a discussion of Alternative 1 (proposed action) and Alternative 2 (no action). The analysis for each resource area includes discussions of the existing environmental setting, applicable significance criteria, potential environmental impacts, and project design features (e.g., environmental commitments).

There is a clear distinction between NEPA and CEQA concerning mitigation measures. No new CEQA mitigation measures were identified for the resource topics addressed in this chapter. The environmental commitments listed in Table 2-2 and fully described in Appendix E have been incorporated into Alternative 1 to ensure that there are no significant impacts as defined under CEQA.

An alphanumeric coding system that corresponds to the CEQA mitigation measures found in Appendix A of the Master EIR/Programmatic EA is used to identify each CEQA mitigation measure incorporated into the proposed action as an environmental commitment pursuant to NEPA. Where a NEPA environmental commitment corresponds to a referenced CEQA mitigation measure as described in the Mitigation Monitoring and Reporting Program (MMRP) (Appendix A of the Master EIR), it is cross-referenced in Table 3-9 at the end of this chapter (e.g. EC-CU-1 [4.10-2a]).

Table 3-1 identifies the resource topics considered in this document as well as those eliminated from further consideration, and Appendix A contains an Environmental Screening Checklist based on the Master EIR/Programmatic EA, which was used to screen and identify resource topics and issues to carry forward for further evaluation. Resource topics eliminated from further consideration due to the resource not being present or the issue not being a concern at this rehabilitation site are also listed in this table.

Table 3-1. Summary of Resource Topics Considered or Eliminated from Further Consideration in this EA/IS

Resource Topic	Analyzed in the EA/IS?	Comments[a]
Visual Resources/ Aesthetics	Yes	Temporary and long-term changes to visual resources or aesthetics are assessed. Scenic resources associated with scenic highways are not present. Light and glare were discussed in the Master EIR, and no issues were identified.
Agricultural Resources	No	Agricultural lands (e.g., timber production lands) and uses are not present.
Air Quality	Yes	Temporary construction-related emissions and dust are assessed. No long-term air quality impacts, including greenhouse gas contributions, are expected.
Cultural Resources	Yes	Impacts on tribal cultural resources, archeological resources, and historic properties/historical resources are assessed. The alluvial nature of the geology of the project ESL is not conducive to the occurrence of paleontological resources.
Environmental Justice	No	Economically disadvantaged communities are present within Trinity County; however, the proposed action would not disproportionately

Resource Topic	Analyzed in the EA/IS?	Comments[a]
		affect low-income or minority populations. Environmental Justice issues were assessed in the Master EIR, and no issues were identified.
Fishery Resources	Yes	Impacts on aquatic habitat and special-status fish are addressed. *Proposed project elements would affect anadromous fish habitat and populations. Vehicular river crossings would create water quality issues, affect fish habitat, and increase the potential for a spill of hazardous materials into the river[b]. Proposed project elements could affect habitat for mussels.*
Forestry Resources	Yes	Forestry resources are assessed. This topic is covered in the Vegetation, Wildlife, and Wetlands section.
Geology and Geologic Hazards	No	Unique geological resources are not present. Geologic hazards were assessed in the Master EIR, and no issues were identified.
Geomorphology and Soils	Yes	Soil disturbance, erosion potential, changes to the geomorphology of the river, and disposal of excavated materials are assessed in the Soils and Geology section.
Greenhouse Gases	Yes	Greenhouse gas emissions are assessed in the Air Quality section.
Hazardous Materials	No	Hazardous materials were assessed in the Master EIR, and no issues associated with hazardous materials sites were identified. The use of hazardous materials during construction activities is assessed in the Soils, Fishery Resources, Wildlife, and Water Quality sections.
Hydrology and Flooding	Yes	Changes to the hydrology of the river and floodplain effects are assessed in the Hydrology and Flooding section.
Indian Trust Assets	Yes	Impacts on legal interests held in trust for Federally-recognized tribes and impacts on tribal uses of the river and its resources are assessed in the Master EIR. This EA/IS briefly revisits the latter in the Cultural Resources section.
Indian Sacred Sites	No	No Indian sacred sites have been identified in or near the project ESL. Cultural resource environmental commitments cover potential discoveries.
Land Use	Yes	Consistency with federal agency resource management plans is assessed. Consistency with the Trinity County General Plan is also assessed.
Mineral Resources	Yes	Impacts on recreational mining and from use of mineral resources are assessed. These topics are discussed in the Recreation, Geomorphology, and Soils sections.
Noise	Yes	Increased noise during construction activities is assessed in the Noise section.
Population and Housing	No	No populations or housing would be affected; activity areas were configured to avoid recreational residences.
Public Health and Safety	No	Hazards to the public were assessed in the Master EIR, and no issues were identified. Indirect public health or safety concerns are assessed in the Air Quality, Noise, Recreation, and Transportation and Traffic sections.
Public Services	No	Public services were assessed in the Master EIR, and no issues associated with the increased demand for or disruption of public services were identified. Access-related issues are discussed in the Transportation and Traffic sections.
Recreation	Yes	Potential disruptions to recreational uses are assessed in the Recreation section.

Resource Topic	Analyzed in the EA/IS?	Comments[a]
Socioeconomics	No	Socioeconomics were assessed in the Master EIR in the Population and Housing section, and no issues were identified.
Transportation and Traffic	Yes	Increased traffic and access-related issues are assessed in the Transportation and Traffic section.
Tribal Cultural Resources	Yes	Tribal cultural resources are assessed in the Cultural Resources section.
Utilities and Energy	No	Utilities and energy were assessed in the Master EIR, and no issues were identified.
Vegetation, Wildlife, and Wetlands	Yes	Vegetation removal, disturbance to wildlife, and modifications of wetlands are addressed in the Vegetation, Wildlife, and Wetlands section. *Proposed project elements could alter amphibian and reptile habitat and impact resident species. Proposed project elements could affect northern spotted owl habitat and individuals. Restoration activities have the potential to introduce noxious weeds into the area.*
Water Quality	Yes	Temporary and long-term water quality impacts are addressed in the Water Quality section. *Proposed project elements could impact water quality.*
Wild and Scenic Rivers	Yes	The recreation and aesthetic values of the Trinity River are addressed in the Wild and Scenic River Designation section. *Proposed project elements could impact visual quality, Wild and Scenic River characteristics, and recreational activities. The project ultimately enhances Wilde and Scenic River characteristics.*

Notes:

[a.] Forest Service Key Issues are presented in italics.

[b.] Also applies to Hazardous Materials and Water Quality.

3.2 LAND USE

3.2.1 Affected Environment

The project ESL encompasses approximately 67 acres of both federal and private lands. The BLM manages about 40 percent of the ESL and the Forest Service manages 43 percent. Public access to the project ESL is at river left via Sky Ranch Road which intersects with SR 299 approximately 2 miles north of the project ESL. There is no public access to the project ESL from river left.

Temporary and permanent access routes would provide entry into both private and public parcels for project activities. The proposed temporary construction access routes on river right (A-5, A-6, and A-6a) would lead from the private parcels along Sky Ranch Road, to the upstream activity areas (e.g., C-2, R-12, IC-2, X-1) and the downstream activity area U-2. Access to the activity areas on river left is by A-9, which crosses private and BLM lands. A-9 and A-15 would provide temporary access to most of the activity areas on river left and would not be available for public use. A-3 on NFS lands would provide access from downstream activity areas on river left to upstream activity areas C-1 and U-1, located on NFS lands.

The BLM and NFS lands are used primarily for recreational activities associated with the Trinity River. Boats and rafts provide access to both NFS and BLM lands along both sides of the river through the project ESL. Historic use of the land included mining, and dredge tailings are present along the river corridor.

Most of the private property within the project ESL occurs on river right. The project boundary intersects six private parcels. Two of these parcels are classified as residential use, but there are no residences located within the

project ESL boundary. Trinity County designates four of the private parcels in the project ESL as Agricultural Forest (aka timber production) with a 20-acre minimum lot size (AF20), and those portions of the parcels in the 100-year floodplain of the Trinity River have an overlay designation of Scenic Conservation. Land uses on private lands are guided by the Trinity County General Plan and Junction City Community Plan.

The STNF manages NFS lands under its LRMP. The LRMP is based on three broad management strategies: preservation, biodiversity, and sustainable development for people. Resources are categorized by type (such as air resources, fisheries, lands, etc.) and assigned management goals, standards, and guidelines for each of the six land use categories (Congressionally Reserved Areas, Late Successional Reserves, Administratively Withdrawn Areas, Riparian Reserves, Matrix, and Adaptive Management Areas). The LRMP requires that land uses be managed consistent with the standards and guidelines. The ACS and other elements of the Northwest Forest Plan are applicable to all BLM and NFS lands in the project ESL.

3.2.2 Environmental Consequences

Alternative 1

The proposed rehabilitation activities would not change the uses of the project ESL lands nor require changes to land use allocations or zoning designations. Temporary disruptions to nearby property owners and recreationists using the river and adjacent land near the project ESL could occur during the rehabilitation activities (i.e., 3 to 6 months for construction and up to 5 years for revegetation efforts). Still, no long-term impacts are anticipated, and the use of the land in the project ESL would be the same as under current conditions. Recreation-related impacts are discussed in Section 3.3 – Recreation, and access-related impacts are discussed in Section 3.6 – Transportation and Circulation. The restored floodplain and habitats would enhance the area for recreationists and would maintain open space and scenic views near the private residences.

Based on the nature of the rehabilitation activities, Alternative 1 would be consistent with current uses and zoning of the project ESL, as defined by the BLM, the Forest Service, and Trinity County. The BLM's Redding RMP describes various objectives for resource conditions applicable to federal lands in the project ESL, and the rehabilitation activities would help the BLM achieve these objectives for the Trinity River. Alternative 1 would also help the Forest Service and the BLM ensure compliance with the LRMP and RMP, respectively, by helping to meet Riparian Reserve Standards and Guidelines. Additional details concerning the consistency of the TRRP activities with the Redding RMP and the STNF LRMP are presented in Appendices G (ACS), H (Survey and Manage Species), and I (Wild and Scenic Rivers).

Alternative 1 was developed to be consistent with the BLM RMP, the STNF LRMP, and the Trinity County General Plan. Therefore, CEQA-specific impacts considered under this resource topic would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under Alternative 2, land uses in the project ESL are expected to remain similar to existing uses. Therefore, there would be no impacts to land use as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.3 RECREATION

3.3.1 Affected Environment

The project ESL encompasses both federally managed and privately-owned land. The primary use of BLM and NFS lands in the project ESL is associated with various types of recreational activities. Homes on private lands in proximity to the project ESL are used seasonally for various recreational purposes (e.g., fishing).

The Trinity River provides year-round recreational opportunities, including boating, kayaking, canoeing, rafting, inner tubing, fishing, swimming, camping, gold panning, wildlife viewing, picnicking, hiking, and sightseeing. Fishing for Chinook salmon, steelhead, and rainbow and brown trout is a significant recreational activity on the Trinity River throughout the year but is more prevalent between April and December.

The BLM and the Forest Service issue up to 100 permits for commercial fishing guides along this reach of river. The Forest Service also issues 13 rafting permits for the river, although most rafting occurs downstream of the project ESL. Visitor use in the project ESL is generally light throughout the year, with an occasional bank fisherman, drift boat, or raft transiting the area.

There are no campgrounds or other formal recreational sites in the project ESL, and public access to BLM and NFS lands in the project ESL is limited on river right due to the pattern of private ownership in and adjacent to the project ESL as well as the lack of a bridge or ford. There is no public access to the river on river left due to the pattern of private ownership within and adjacent to the project ESL, as well as the lack of a bridge or ford.

3.3.2 Environmental Consequences

Alternative 1

Alternative 1 would require construction in the active river channel, the floodplain, and adjacent upland areas, as described in Chapter 2. The proposed action would require construction within the active river channel, the floodplain, and adjacent upland areas. Construction activities could result in temporary disruptions to public access from Sky Ranch Road on river right and access to private lands on river left. However, river access and recreational opportunities would continue to be available at other locations along the river (e.g., Evans Bar). Because disruptions to recreational activities in the project ESL would be temporary, this impact would be less than significant.

Flows that typically contribute to good fishing tend to be clear; increases in turbidity as a result of this alternative may affect the recreational experience of anglers and the aesthetic values held by other recreationists. Increased turbidity and suspended solids levels would adversely affect water quality (refer to discussion in section 4.8, Recreation, of the Master EIR) and could adversely affect aesthetic resources. Four environmental commitments have been integrated into this alternative to reduce the impacts of increased turbidity levels on recreational users (see Appendix E, EC-WQ-1 [4.5-1a-1e], EC-WQ-2 [4.5-2a-2c], EC-WQ-3 [4.5-3a-3c], and EC-WQ-4 [4.5-1e]).

Implementation of Alternative 1 could increase turbidity and total suspended solids in the Trinity River for some distance downstream during construction activities. The level of the increase would be largely dependent on the flow regime at the time of construction. Water quality objectives for the Trinity River specifically prohibit the discharge of any materials into the river that could cause a nuisance or adversely affect beneficial uses such as recreation. The extent of downstream sedimentation would be a function of instream flow velocity and particle size. For example, fine-grained sediments like silts and clays could be carried several thousand feet downstream of the project ESL. In contrast, larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction limit.

Temporary construction activities associated with this alternative could pose a physical hazard to recreational users of the river and cause short-term resource damage to lands used for recreational activities in and adjacent to the project ESL. Potential physical hazards to recreationists include the presence of temporary river crossings (e.g., X-1, X-2), operation of construction equipment and vehicles in and around the rehabilitation site, changes in the river's subsurface movement as a result of the in-channel addition or removal of gravel, the addition of wood into the channel, and an increased potential for a hazardous materials spill (e.g., diesel and hydraulic fluid) from construction equipment and vehicles operating in and adjacent to the river. The potential for hazardous material

spills and unstable riverbanks and/or uplands resulting from excavation, material addition, road creation, and vegetation removal could also result in a hazard to recreational users.

Reclamation would prepare and post precautionary signage and public notification warning of in-river construction to reduce the hazards to recreational users that would be associated with in-river construction activities (see Appendix E, EC-RE-1 [4.8-1a]). This approach has worked well for previous TRRP projects and has been particularly effective in reducing impacts on in-water recreational activities such as boating and fishing over the past 10 years.[14]

After construction is completed, the activity areas would be evaluated by Reclamation in conjunction with land managers and owners to identify specific prescriptions required to minimize any further potential safety risks to recreational users and to ensure the avoidance of any additional project effects to resources occurring on recreational lands in the project boundaries.

With the inclusion of CEQA mitigation measures described in this section, impacts under CEQA considered under this resource topic would be less than significant (see Appendix E, EC-WQ-1 [4.5-1a-1e], EC-WQ-2 [4.5-2a – 2c], EC-WQ-3 [4.5-3a-3c], EC-WQ-4 [4.5-1e], and EC-RE-1 [4.8-1a]) (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under Alternative 2, recreational resources and uses in the project ESL are expected to remain similar to existing conditions. Therefore, there would be no impacts to recreational resources or disruption of uses as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.4 VISUAL RESOURCES/AESTHETICS

3.4.1 Affected Environment

The Trinity River is considered an essential aesthetic and visual resource for residents of Trinity County and visitors to the area. The river is an integral component of the communities and residential areas throughout the county. Residents and visitors actively use the river for recreation, both on and adjacent to the river. The river also offers a variety of landscapes, many of which are incorporated into the rural residential lifestyle of Trinity County.

This section describes the scenic values and visual resources that are known to occur in the project ESL. The BLM is responsible for managing its lands for multiple uses while ensuring that the scenic values and open space characteristics of these lands are considered before authorizing actions on these lands. The BLM accomplishes these responsibilities through its Visual Resource Management (VRM) system. The VRM system classifies land based on visual appeal, public concern for scenic quality, and visibility from travel routes or observation points. VRM classes are used to identify the degree of acceptable visual change in a landscape based on its physical and sociological characteristics. Classes I and II are the most valued, Class III represents a moderate value, and Class IV is of the least value. Alternative 1 would affect BLM lands in the project ESL with the VRM Class Objective of II (BLM 1993).

BLM Manual 8431, Visual Resource Contrast Rating, provides the following management objectives for VRM Class II (BLM 1986):

Class II Objective: The objective of this class is to retain the existing character of the landscape.

[14] Section 3.14 (Wild and Scenic Rivers) and Appendix J provides additional information on potential impacts on fishing and other water-based recreation.

> *The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.*

The Forest Service manages NFS land in the project ESL consistent with the STNF LRMP. Specifically, the LRMP standards and guidelines for visual resources state that activities and projects should be managed to meet Visual Quality Objectives (VQOs) (Forest Service 1995). The VQOs are as follows:

- Preservation
- Retention
- Partial retention
- Modification
- Maximum modification
- The VQO for NFS lands in the project ESL is Partial Retention

Due to the lack of sensitive receptors, remote setting, and limited public access, key observation points were not developed for this project. Other than seasonal access by landowners and nearby residents, there are no public viewpoints of the project ESL. Due to the nature of the tailing deposits and extensive riparian vegetation, views from the river are limited other than directly upstream or downstream.

Because of the rural nature of the river corridor, the primary sources of artificial light within or adjacent to the project ESL are limited to vehicle headlights on Sky Ranch Road and Dutch Creek Road. Glare may occur during the daylight hours as the sun is reflected off vehicles and equipment that are occasionally operating or parked within activity areas temporarily or the water or light-colored alluvium associated with floodplain and terrace features.

3.4.2 Environmental Consequences

Alternative 1

The potential impacts of this alternative would include changes brought about by the removal of vegetation, construction of inundated surfaces and in-channel features, construction of or improvement of access routes, creation, and use of staging and gravel processing areas, wood placement, and use of upland areas for construction spoils. These various activities, once completed, are intended to restore the form and function of an alluvial river, thereby enhancing the overall aesthetic values and visual resources associated with the Trinity River and the surrounding landscape. Furthermore, to conform with agency visual resource guidance, wood placement and SLJ construction would emphasize the appearance of naturally occurring wood along wild rivers. The adverse impacts are expected to be temporary. The long-term outcome should improve the visual diversity of the corridor, and the short-term (i.e., 1-5 years) impacts would diminish over time.

Activities associated with this alternative are intended to be not only functional (e.g., to enhance fisheries and restore river meanders), but complement the aesthetic values and visual resources associated with the rehabilitation site. Overall, this alternative incorporates the project ESL's diversity of landscapes and vegetation types to define the location, character, and magnitude of the rehabilitation activities at the site. For example, materials excavated from riverine (R) activity areas would be removed to upland (U) activity areas or used as a source of coarse sediment to enhance the alluvial function of the river. Material transported to U activity areas would be placed in a manner that blends the elements into the contours of the topography. Retention of existing vegetation at key locations (e.g., activity areas U-1, U-2, U-3) to screen upland and staging activities would lessen

the degree of visual impact. To the extent possible, SLJs would be installed so that they emulate naturally occurring log jams, with roughened edges and angled placement. The SLJs and log placement would blend in with the scenic character of the river.

From the river itself, most of the adjacent activity areas (i.e., the IC, R, SLJ, and WP activity areas) would be at least partially visible to boaters. The historic character of the tailings is considered a visual asset by some. On river right, Sky Ranch Road parallels the project ESL boundary. On river left, Dutch Creek Road parallels the project boundary but is about a 0.25 mile south and about 300 hundred feet in elevation above the activity areas except for A-9, which is an existing road that crosses from private to BLM land and would provide access to the site. There is one residence along Sky Ranch Road near the project ESL boundary. On river right, several patches of mature riparian vegetation west of U-2 and north of A-6 would be retained to provide screening from the rehabilitation activities.

The activities described in Chapter 2 provide a framework for reestablishing the physical processes necessary to enhance the alluvial attributes and complexity of the river channel and floodplain over time, particularly those attributes that are flow dependent. Over time, this alternative would produce gradual, ever-improving changes in the aesthetic quality of this reach of the Trinity River while maintaining the character of the surrounding land uses.

Implementation of the proposed action would increase the potential for increases in turbidity levels during and, to a lesser degree, after construction. Flows that typically contribute to good fishing tend to be clear (though a small amount of turbidity may reduce fish wariness); increases in turbidity may, therefore, affect the recreational experience of anglers and the aesthetic values held by other recreationists. Increased turbidity and suspended solids levels would adversely affect water quality (refer to discussion in section 4.8, Recreation, of the Trinity River Master EIR) and could adversely affect aesthetic resources. Five specific environmental commitments developed to reduce water quality impacts have been incorporated into this alternative to reduce the impacts of increased turbidity levels that could be visible to recreational users (see Table 2-2 and Appendix E, EC-WQ1 through EC-WQ-5).

Under Alternative 1, sensitive receptors that could be exposed to changes in the visual character of the Trinity River and the adjacent corridor as a result of construction and revegetation activities would be limited in terms of the number of viewers and the limited timeframe of activities. Because of the nature of the project, the rehabilitation activities would not result in degradation or obstruction of a scenic view. While some increase in the level of artificial light or glare would occur during the construction activities, this impact would be limited in both time and intensity. Therefore, there would be no impacts to aesthetic resources as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

Alternative 2

Under Alternative 2, there would be no degradation or obstruction of a scenic view as a result of construction because the project would not be implemented. The level of artificial light or glare would be similar to the existing condition. Therefore, there would be no impacts to aesthetic resources as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.5 CULTURAL RESOURCES

3.5.1 Affected Environment

Cultural resources is a broad term that includes prehistoric, historic, archaeological, and tribal cultural resources. The NHPA is the primary federal legislation addressing the federal government's responsibility related to cultural resources. Title 54 USC § 306108, commonly known as Section 106 of the NHPA, requires the federal

government to take into consideration the effects of an undertaking on any historic property—cultural resources listed on or eligible for inclusion in the NRHP.

The proposed action requires compliance with Section 106. Pursuant to 36 CFR § 800.2(a)(2), if more than one federal agency is involved in an undertaking, the agencies may designate a lead federal agency to act on their behalf to fulfill their collective responsibilities under Section 106.

Pursuant to 36 CFR § 800, Reclamation, on behalf of BLM and itself; and the Forest Service must both complete the identification and evaluation process through respective and separate consultations with federally recognized tribes and interested parties, evaluate resources for their eligibility for the NRHP, and, as necessary, assess adverse effects and make a determination. The BLM has designated Reclamation as the lead federal agency for the Section 106 process for this proposed project on behalf of both agencies, under a joint Programmatic Agreement (PA) between BLM and Reclamation and SHPO, Reclamation has determined that the proposed project will not adversely affect cultural resources. The Forest Service is completing the Section 106 process under their own PA with SHPO and have independently determined that the proposed project will not adversely affect cultural resources on their managed lands.

Assembly Bill 52 (AB52) was approved by the Governor of California in September of 2014. AB 52 requirements apply to projects with a notice of preparation or a notice of negative declaration or mitigated negative declaration filed on or after July 1, 2015. Therefore, the requirements of AB 52 did not apply to the preparation and adoption of the 2009 Master EIR prepared for the TRRP. However, implementation of the Section 106 process of the NHPA ensures that tribal cultural resources were considered and incorporated into the Master EIR, which is incorporated by reference into this EA/IS. The MMRP for the Master EIR (Appendix F) adopted by the Regional Water Board includes measures consistent with the protection of tribal cultural resources, including tribal consultation, resource evaluations, and avoidance, minimization, and other specific mitigation as necessary at the site-scale.

Identification efforts were conducted by William Rich and Associates (WRA), who performed a cultural resources investigation for the Chapman Ranch Phase B project reach on both banks along approximately 1.5 miles of river corridor, south of Junction City and just downstream from Soldier Creek, between river miles 82.8 and 83.8, Trinity County, California. The field survey area focused on the 66-acre Environmental Study Limit (ESL), which coincides with the project's Area of Potential Effects (APE). Identification efforts consisted of a search of the records of the Northeast Information Center (NEIC) of the California Historic Resources Information System (CHRIS); background archival work; correspondence with the Native American Heritage Commission (NAHC), local tribes, the Trinity County Historical Society, and other stakeholders; and a pedestrian survey of the project APE.

This background research concluded that several previous cultural resources surveys covered portions of the current project ESL (Rich et al. 2019). These surveys resulted in the identification of several historic mining features whose boundaries coincide with the current project boundary.

Archaeological research indicates people have been living in this general part of Trinity County for at least 7,000 years (Fitzgerald and Hildebrandt 2002). The prehistory of the Trinity River area has received considerable study in conjunction with various BLM, Reclamation, and Forest Service projects conducted throughout the watershed, mainly as the result of archaeological fieldwork accomplished in preparation for reservoir construction in the river valleys, TRRP restoration projects, and on BLM and Forest Service projects. Additional information on the cultural resources, Native American communities, and mining history of the Trinity River watershed is provided in section 4.10.1 of the 2009 Master EIR.

Within the area of potential effects (APE), cultural resource surveys identified five historical sites related to gold mining activities. Two are historic hydraulic placer mines—P-53-001224 Chapman/Fisher Mine and P-53-002488

Gribble Mine—and three sites are loci of cobble tailings (P-53-002354, 2355, and 2445) from the Junction City Dredge Mine.

The gravels within two of the identified dredge tailing features (P-53-002354, P-53-002445) are targeted for reuse in the creation of riffles, point bars, and structured log jams before these areas are used for the upland fill of fine materials (U1 and U2). These dredge tailings have previously been evaluated as not eligible for the NRHP but were found to potentially contribute to a larger district (AECOM 2013:73; Rich et al. 2019). Previous mitigation for these dredge tailings sites was completed under Chapman Ranch Phase A. It included avoidance measures, preservation of tailings viewshed, and placement of an interpretive panel at the downstream entrance from Sky Ranch Road into the Chaman Phase A Project in the northern lobe of P-53-002354. These conditions were met and will continue to mitigate impacts associated with implementation of U-1 and U-2 during Chapman Ranch Phase B. Additionally, dredge tailings site P-12-002355 will be entirely avoided by project design.

Secretarial Order No. 3175 states that the DOI, "when engaged in the planning of any proposed project or action, will ensure that any anticipated effects on Indian Trust assets (ITAs) are explicitly addressed in the planning, decision, and operational documents that are prepared for the project." ITAs are legal interests in property held in trust by the federal government for federally recognized Indian tribes or individual Indians. "Assets" are anything owned that has monetary value and examples include, land, natural resources, native plants and wildlife, cultural resources, minerals, hunting and fishing rights, water rights, and instream flow.

3.5.2 Environmental Consequences

Alternative 1

Under Alternative 1, the Section 106 process would be followed. Pursuant to 36 CFR § 800, documented resources within the APE would be evaluated for eligibility for the NRHP through the consultation process. For any resources found eligible for listing on the NRHP, an assessment of effects would be made and, if necessary, adverse effects resolved. The Section 106 process would be completed before the finalizing of the EA/IS or signing of the FONSI.

Short-term impacts to ITAs described in sections of this EA/IS pertaining to water quality, fisheries and wildlife, vegetation, and wetlands would occur if the project is implemented. However, these impacts are expected to be short-term and outweighed by the overall long-term benefits to Tribal trust assets gained through project implementation. Therefore, the impact to ITAs is less than significant.

Alternative 2

Under Alternative 2, the condition of cultural resources would remain similar to existing conditions. There would be no undertaking as defined in 36 CFR§ 800.16(y) and, therefore, no potential effects on historic properties. Furthermore, there would be no impacts to cultural resources as defined in the California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15382.

3.6 TRANSPORTATION AND CIRCULATION

3.6.1 Affected Environment

The transportation network in the vicinity of the project ESL is typical of a rural environment, with low traffic and little development. SR 299 is the main highway in the region and is a designated truck route between the Sacramento Valley and the coastal communities of northern California. The highway goes through Junction City, approximately 5 miles north of the project ESL. Traffic counts along SR 299 between Weaverville, northeast of the project ESL, and Big Flat Camp, approximately 8 miles west of Junction City, were between 2,000 and 3,450 average annual daily trips in 2016 (Caltrans 2018)

Sky Ranch Road, part of the Trinity County road system, provides primary access to the project ESL from SR 299 on river right. Surveys conducted by Trinity County in 2012 and 2013 document that the section of the road in the general vicinity of the project ESL has a native soil subgrade with a chip-seal overlay; the most recent surfacing was approximately 15 years ago. Survey results provided by the County indicate that a segment of road north of the project ESL and south of SR 299 ranged in condition between good and poor at the time the survey was conducted. According to residents, the road surface has since become worse.

Dutch Creek Road intersects with SR 299 at Junction City and provides access to the project ESL on river left. Dutch Creek Road is a narrow two-lane paved road that is also maintained by Trinity County. A traffic count placed on Dutch Creek Road approximately 3 miles north of the project ESL indicates a daily average of approximately 200 trips.

Based on the number of residences accessed via Sky Ranch Road, it is estimated that traffic counts along this road equal fewer than 200 trips daily. Primary travelers along local roads about a mile north of the project ESL are residents and property owners, with occasional recreationists, agency staff, or other users visiting the area. Access to BLM lands within the project ESL is via Sky Ranch Road to an unimproved route previously developed for the Deep Gulch-Sheridan Creek project (A-6).

3.6.2 Environmental Consequences

Alternative 1

Under the proposed action, construction equipment and vehicles would temporarily increase traffic on two roads, Sky Ranch Road and Dutch Creek Road. Construction equipment (e.g., large trucks, excavators, and backhoes) would be mobilized to the project ESL prior to rehabilitation activities. It would be removed upon completion of these activities to minimize the number of daily trips, per the environmental commitments outlined in Table 2-2 (i.e., EC-TC-2 [4.16-2a, 4.16-5a]) and fully described in Appendix F. During construction, 20 to 30 workers and their vehicles would access the project ESL daily. SR 299 is a designated truck route that was built to withstand occasional use by heavy equipment and has a moderate volume of existing traffic. The temporary use of SR 299 for access to the project ESL during rehabilitation activities would not change its current level of service or average traffic volumes and would not affect roadway conditions. In addition, trucks carrying heavy equipment and materials would operate within the legal weight limits, as determined by the state.

The temporary project use of Dutch Creek Road and Sky Ranch Road in conjunction with temporary access routes A-5, A-8, A-9, and A-11 could delay or restrict commercial, recreational, and residential access to BLM and private lands, but no road closures would be required. Traffic control measures would be implemented to alert travelers to the rehabilitation activities and minimize conflicts during the activities, following environmental commitments listed in Table 2-2 (EC-TC-1 and EC-TC-4 [4.16-2a, 4.16-5a]). Access to adjacent private properties would be maintained throughout the construction period per environmental commitment EC-TC-2; however, access to the project ESL would be restricted to project traffic based on individual agreements with landowners and would not be available to the public during construction.

The use of local roads by trucks and heavy equipment could degrade roadway conditions due to increased wear and tear and require road restoration once the rehabilitation activities are complete. Per EC-TC-3 [4.16-4a], Reclamation would survey the road conditions before the rehabilitation activities and assess the degree of post-construction restoration that may be needed. Access routes across private land may require some degree of grading and/or resurfacing to restore them to pre-disturbance conditions, and Reclamation would coordinate with the landowners to ensure that these routes are in acceptable condition after the rehabilitation activities. After construction of the project is completed, temporary access routes across public lands would be restored to preconstruction conditions. Post-construction, access route A-11 would be gated but would be available to the BLM for administrative and authorized activities. It is anticipated that the access route would be used for up to 5

years post-project for revegetation management (e.g., planting and irrigation) purposes. Subsequently, temporary access routes (e.g., A-3, A-5, A-6, A-6a, A-9, and A-15) would be removed or converted to walking trails.

Post-construction activities (i.e., revegetation, maintenance, and monitoring) would require intermittent access by TRRP staff and consultants for 3 to 5 years, and occasional access for construction equipment if implementation of adaptive management measures is required to ensure the success of the rehabilitation activities. This traffic would be minimal and would not affect local traffic volumes or roadway conditions.

With the inclusion of CEQA mitigation measures outlined in Appendix E (EC-TC-2 [4.16-2a, 4.16-5a] and EC-TC-3 [4.16- 4a]), impacts under CEQA on traffic and transportation would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under Alternative 2, traffic conditions and traffic circulation would remain similar to existing conditions. Therefore, there would be no impacts to traffic conditions as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.7 AIR QUALITY

3.7.1 Affected Environment

Trinity County has a climate characterized by hot, dry summers and cold, moderately wet winters. Most precipitation in the county results from major storms originating in the Pacific Ocean; however, short thunderstorms resulting from localized climatic conditions occur in the summer months. Precipitation at the site is predominantly rainfall, with occasional snow in the winter (North Coast Unified Air Quality Management District 1995). Trinity County has an average summer high temperature of 93.9 degrees Fahrenheit (°F) and a winter low of 27.3°F.

Trinity County's air quality is generally good. Low population densities limited industrial and agricultural operations, and minimal traffic congestion contribute to the good air quality. Ambient air quality data are available from the Weaverville air monitoring station, which is located approximately 6 miles from the project ESL. Air quality data from this station may not be a precise representation of ambient air quality in the project ESL. Still, it does provide a good indication of air quality in the general vicinity.

Locally, air quality and contributions of greenhouse gases (GHG) to the atmosphere along the Trinity River corridor is influenced by topographic features, microclimate, and pollutants such as road dust and smoke from wildfires in the summer and wood stoves/fireplaces during cold weather (i.e., particulate matter [PM] 10 microns or less [PM_{10}] and particulate matter 2.5 microns or less [$PM_{2.5}$]). Occasional high levels of PM in Trinity County generally coincide with regional wildland fire events during the dry summer months and with localized woodstove use and brush burning activities during periods of cool, wet weather.

Sensitive receptors consist of human populations, particularly children, seniors, and individuals with health risks, located where there is a reasonable expectation of human exposure to pollutants. The project ESL is not located near a school, hospital, senior housing, or other facilities where concentrations of sensitive receptors may be located.

There are a number of residential properties adjacent to the project ESL. The majority of the residences in and adjacent to the project ESL use wood as a source of heat as well as burn piles to reduce fuels on private parcels. Operation of heavy equipment on private parcels within and adjacent to the project ESL occurs periodically and is a source of vehicle emissions. Both the burning of wood and other vegetation and the operation of heavy equipment periodically contributes to localized increases in pollutants such as PM and GHG, respectively.

Reoccurring wildfires throughout the Trinity River watershed periodically result in smoke and ash that drastically increases the PM levels within and adjacent to the project ESL.

3.7.2 Environmental Consequences

Alternative 1

Rehabilitation activities associated with Alternative 1 would require excavation, grading, disposal of earthen materials, and the use of vehicles and heavy equipment on unpaved roads and access routes, all of which would generate fugitive dust in the project ESL. Fugitive dust emissions would also result from activities associated with vegetation removal and gravel injection. There are few residential properties within or adjacent to the project ESL that would be exposed to temporary changes in air quality. One residential property is immediately adjacent to the project ESL, and access to this property is via a private driveway off Sky Ranch Road. This driveway would not contribute any additional dust as a result of the project, but adjacent dirt access routes used during construction may result in periodic sources of road dust (i.e., PM).

Transportation and construction activity associated with project implementation would generate GHG emissions from diesel- and gasoline-powered vehicles and equipment. An environmental commitment listed in Table 2-2 and described in Appendix E (EC AQ-1 [4.11-a-1a], [4.11-2a]) is incorporated into this alternative to reduce the impacts of air quality and GHGs. Additionally, the following measures would be used to enhance the awareness of global climate change in conjunction with this alternative:

- Provide project contractors with educational material about fuel efficiency and incentives;
- Promote incentives for contractors to initiate ride-sharing programs;
- Promote the use of energy-efficient and alternative fuel construction equipment and transportation fleets through contract incentives;
- Require contractors to provide recycling bins for onsite waste materials;
- Provide incentives for contractors to use re-usable water containers rather than plastic bottled water;
- Provide incentives for contractors to hire locally; and
- Require reusable batteries for equipment that can use them.

A "carbon foot-print" was developed to determine the significance of the impact of this alternative, and the project's potential generation of GHGs (primarily carbon dioxide [CO_2]) from project activities. Project activities that would offset potential impacts were weighed into the equation. This analysis indicated that the proposed action would produce approximately 675 pounds of CO_2 per day throughout an 88-day construction period. Total GHG emissions resulting from the proposed action is estimated to be approximately 54 metric tons of CO_2.[15]

Based on those calculations, GHG emissions associated with the use of heavy equipment would be measurable throughout the project under this alternative; however, GHG emissions and any effects on global climate change would not be cumulatively significant considering the amount of GHG emissions generated by this alternative in the context of current local air quality conditions. As a result, this alternative represents a much smaller action than that analyzed in the Trinity River Master EIR. Additionally, project activities are expected to result in

[15] The Road Construction Emissions Model Version 8.1.0 was used to calculate GHG emissions for combustible fuel (Sacramento Metropolitan Air Quality Management District 2016) and the Construction Carbon Calculator was used to calculate GHG emissions from vegetation loss (Build Carbon Neutral 2007). The calculation is based on 88 days of construction per site and includes diesel fuel combustion and loss of vegetation.

opportunities to increase the amount of riparian and upland vegetation, particularly with the rehabilitation and revegetation of dredge tailing deposits.

Fugitive dust resulting from project activities would occur during the dry summer and early fall months, when PM levels may be elevated by wood stove use, brush burning, or wildland fires. This alternative would increase the PM levels to varying degrees, depending on the type and extent of construction activity. Dust control measures will be used to reduce project-related impacts. Once rehabilitation activities have been completed, project impacts on air quality from fugitive dust would cease.

Diesel- and gasoline-powered equipment and vehicles used in project construction could also contribute to air pollution. Diesel particulate is an identified hazardous air pollutant and toxic air contaminant. As with PM, measures will be implemented to reduce project-related impacts from the use of diesel- and gasoline-powered equipment and vehicles. Once rehabilitation activities have been completed, project impacts on air quality from fugitive dust and vehicle emissions would cease.

Due to the high fire hazard and history of equipment-caused fires in Trinity County, construction contractors would be required to follow the BLM's and the Forest Service's applicable regulations as well as California Public Resource Code 4428-4442 during dry periods to minimize the potential for the initiation and spread of fires from the worksite. Compliance with these federal and state requirements would reduce the potential for emissions due to a wildland fire.

This alternative would include vegetation removal. All of the vegetative material not used in the construction of SLJ and WP features would be chipped and left on the floodplain or placed in upland areas to enhance growing conditions and reduce the potential for erosion. All areas not subject to inundation would be revegetated with native riparian and upland plant and tree species. In some locations, non-native grass may be planted as a short-term erosion control measure.

With the inclusion of CEQA mitigation measures (see Appendix E, EC AQ-1 [4.11-a-1a], [4.11-2a] and EC AQ-4), impacts under CEQA on air quality would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under Alternative 2, air quality conditions would remain similar to existing conditions. Therefore, there would be no impacts to air quality as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.8 NOISE

3.8.1 Affected Environment

Sensitive receptors are specific geographic points, such as residences or recreational facilities (e.g., boat launch), where people could be exposed to unacceptable levels of noise. Noise-sensitive land uses that have been identified in the project ESL include private residences and recreation use of the river corridor. Noise levels in the project vicinity are governed primarily by road noise along Evans Bar Road and Dutch Creek Road (located west of the project ESL) from local residential traffic, occasional commercial traffic (e.g., logging trucks), and other miscellaneous sources (i.e., chain saws, lawnmowers, overhead aircraft, barking dogs, children at play). There are approximately five private parcels that are adjacent to or near (i.e., approximately 0.5 mile) the project ESL; two of these parcels have one or more structures that may be occupied and susceptible to project-related noise. In addition, the recreational use of the river corridor by boaters (i.e., anglers and rafters) occurs throughout the year. Recreational users may be close to one or more activity areas during the construction period as they float through this reach. Still, the duration of their exposure to construction noise would depend on the type of recreational

activity. For instance, a boat floating through the project ESL may take as long as an hour to get through the project reach.

In 2002, a community noise survey was conducted for Trinity County (Brown-Buntin 2002) as part of the update for the County General Plan – Noise Element. The nearest survey points to the project ESL were two sites about 3 miles away in Junction City: Junction City School and Winton Pass Road (Lot 25). The community noise survey results indicate that noise levels at these two noise-sensitive areas range from 52 to 60 dB Ldn[16] at those locations. These are low noise levels typical of small communities and rural areas. Maximum noise levels observed during the noise survey were generally caused by local automobile traffic and heavy trucks (Brown-Buntin 2002). Occasional aircraft overflights and construction activities were other sources of maximum noise levels. Background noise levels in the absence of these maximum noise generating events are primarily attributable to distant traffic, wind, birds, and insects.

3.8.2 Environmental Consequences

Alternative 1

Under Alternative 1, noise from construction activities would temporarily dominate the noise environment in and adjacent to activity areas for varying periods of time. Construction activities would generate maximum noise levels ranging from 65 to 84 dB Ldn at 50 feet, although intervening terrain and vegetation could reduce these noise levels. Construction noise would be temporary and is expected to occur primarily between July and September. Adjacent landowners would be notified by letter before project construction. In addition, the environmental commitments outlined in Table 2-2 and Appendix E (EC-NO-1 [4.14- 1a] and 2 [4.14-1b]) would ensure that noise-muffling devices would minimize temporary noise impacts, so sensitive receptors would not be negatively affected for extended periods. Construction activities would be scheduled between 7:00 a.m. and 7:00 p.m., Monday through Saturday. Construction activities would be prohibited on Sundays unless a variance is granted by both Trinity County and the BLM managers.

Residences located near the site would be subjected to varying degrees of construction noise, primarily associated with construction traffic entering and exiting the project ESL during the authorized work periods. It is not anticipated that ground vibration created by project activities would be detectable at any sensitive receptor location, nor would the activities result in any structural damage. Recreational users in the general vicinity of the site could encounter increased ambient noise levels during construction activities. While such an increase in noise could be significant, its impact would be temporary and localized, and would be minimized with the implementation of environmental commitments EC-NO-1 [4.14-1a] and 2 [4.14-1b] (see Appendix E).

If activities are proposed prior to the completion of the nesting season, or if migratory birds are using habitat in the project ESL for nesting and rearing purposes, pre-construction surveys would be performed to identify specific activity areas where noise-related impacts would be deferred until after the nesting season is complete or until a qualified biologist has determined the young have fledged the nest. The increase in noise effects on wildlife (e.g., raptors, songbirds, bat roosts, and ring-tailed cat dens) could be significant. These impacts would, however, be temporary and localized and would be minimized with the implementation of environmental commitments EC-VW-6 [4.14-1a] and 7 [4.14-1b] (see Appendix E).

With the inclusion of CEQA mitigation measures EC-NO-1 [4.14-1a], EC NO-2 [4.14-1b], EC-VW-6 [4.14-1a], and EC-VW-7 [4.14-1b] described in this section, impacts under CEQA related to noise would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

[16] dB Ldn = The average equivalent sound level during a 24-hour day, obtained after addition of 10 A weighted decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

Alternative 2

Under Alternative 2, noise impacts to sensitive receptors would remain similar to existing conditions. Therefore, there would be no noise-related impacts as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.9 GEOMORPHOLOGY AND SOILS

3.9.1 Affected Environment

The mainstem Trinity River generally flows north through the project ESL. Major influences on the river channel are flow regulation from Lewiston Dam, about 23 miles upstream of the project ESL, and a wide array of historical large-scale mining sites.

The 0.3-mile section of the river in the project ESL is characterized by a relatively wide alluvial valley bottom, relatively low water surface slopes, low sinuosity, and simple channel geometry. No deep pools or prominent bars exist within the site. The channel is almost exclusively single thread, with some evidence of riffles, bars, or similar topographic elements. Sinuosity is low, with channel curvature being almost entirely driven by valley confinement. Grain size at the site varies from relatively fine, with a median grain size of 30-60 millimeter and much coarser areas with a median grain size of 90-150 millimeter (Hoopa Valley Tribe Design Group 2019).

Several miles downstream of the Chapman Ranch Phase B site, Oregon Gulch discharged millions of cubic yards of mining debris from hydraulic mining at the LaGrange Mine on Oregon Mountain over 60 years ending in the 1930s. Massive aggradation during the period dominated by hydraulic mining was followed by large-scale dredge mining of the alluvial valley floor that continued into the 1950s. The channel and associated alluvial features of the Trinity River were dredged extensively, and the dredge tailing deposits are evident on the right side of the river throughout the project ESL.

Flows in the Trinity River downstream from Trinity and Lewiston dams have been regulated since Trinity Dam was closed in 1960. Diversion of up to 90 percent of the Trinity River to the Sacramento River basin in the 1960s and 1970s led to substantial geomorphic changes in many locations along the Trinity River, with the predominant responses being channel narrowing and vegetative encroachment along the channel margins (USFWS and HVT 1999). Although flow regulation has positively influenced current conditions, larger-scale historical mining impacts are also important drivers of recent geomorphic evolution in the project ESL.

The channel through the Chapman Ranch Phase B site is deeply incised into the mining debris and has a simple, canal-like morphology. For much of its length, the channel is bounded on one side by tailings piles or a flattened tailings terrace as much as 20 feet higher than the current streambed and on the other side by large, heavily-vegetated levees that were deposited along the pre-dam channel margin in the latter half of the 20th century. The Chapman Ranch Phase A project is located just downstream from the proposed project ESL. Completed in 2019, the Phase A project would be enhanced by this alternative, which is designed to work in concert with it to restore geomorphological complexity to the entire Chapman Ranch reach.

Mineral resources in the project ESL consist primarily of gravel and cobble, which are considered suitable for use in river rehabilitation activities. Placer mining of alluvial gravel for gold using a variety of techniques over time has left tailing deposits of different types that are apparent throughout the project ESL; these deposits continue to influence the form and function of the Trinity River.

Other than mining activities authorized under the Surface Mining and Reclamation Act of 1975 (SMARA), information on private mining activities in Trinity County is limited. According to the BLM and Trinity County records, there are currently no approved mining activities operating under the provisions of the 1872 mining law or a county SMARA permit within or near the project ESL.

There is one active sand and gravel mine, the Eagle Rock Mine, operating under a county SMARA permit several miles from the project ESL. This mine is currently operating at the site of the historic La Grange Hydraulic Gold Mine upstream of Junction City.

Seven soil map units (i.e., types) occur in the project ESL and are described in the Soil Survey of the Trinity County, California, Weaverville Area (NRCS 1998), and Soil Survey of the Shasta-Trinity National Forest Area, Parts of Humboldt, Siskiyou, Shasta, Tehama, and Trinity Counties, California (NRCS 2018). An overview of each soil type is presented in Table 3-2.

Table 3-2. Soil Map Units in the Project ESL

Map Unit Name Taxonomy	Map Unit Reference Code	Drainage Class	Depth to Restrictive Layer	Hydric Soils
Atter Extremely Gravelly Loamy Sand, 9 to 15 percent slopes	101, 101tw	Somewhat excessively drained	None	No
Atter-Dumps, Dredge Tailings – Xerofluvents complex, 2 to 9 percent slopes Typic Xerorthents	102, 102tw	Well-drained, somewhat excessively drained	More than 80 inches	No, except stream terraces, alluvial fans, and channels
Xeralfs-Xerorthents complex, 5 to 50 percent slopes Xeralfs, xerorthents	213, 213tw	Well-drained	10 to 60 inches to lithic bedrock	No, except stream terraces
Xeralfs-Xerorthents complex, 5 to 50 percent slopes Xeralfs, xerorthents	213, 213tw	Well-drained	10 to 60 inches to lithic bedrock	No, except stream terraces
Xerofluvents-Riverwash complex, 0 to 5 percent slopes Xerofluvents	217, 217tw	Well-drained	More than 80 inches	Yes
Xerorthents-Rock Outcrop complex, 2 to 15 percent slopes	218	Well-drained	0 to 60 inches to lithic bedrock	No
Water	220	N/A	N/A	N/A

3.9.2 Environmental Consequences

Alternative 1

Under Alternative 1, most of the rehabilitation activities would take place in the active channel or on the existing floodplains and terrace features adjacent to the river. Approximately 3,000 cubic yards of material would be excavated, and about 9,100 cubic yards of fill would be placed at activity areas throughout the project ESL.[17] The excavation and fill of alluvial materials from alluvial and upland areas would expose these disturbed areas to erosion from wind and water to varying degrees, modifying the form and function of these disturbed landscapes.

General ground disturbance from equipment access and use, vegetation removal, stockpiling of materials, and other related activities would also disturb soils on approximately 25.8 acres of the project ESL (see Table 2-1), increasing the potential for erosion due to decreased soil cohesion and armoring and increasing soil compaction in

[17] TRRP staff anticipate that approximately 6,100 yards of alluvial material may be imported from approved commercial or TRRP stockpile sources to meet construction specifications (e.g., large boulders).

some activity areas. Sediment exposed to flowing water has an increased potential to mobilize and be transported downstream. Sediment mobilization could result in other impacts such as short-term increases in surficial and channel erosional processes, increases in turbidity levels (at varying distances) downstream, and changes to the type, volume, and character of deposition downstream. Increased wind and water erosion and subsequent downstream sediment transport in the Trinity River would occur if soils are exposed during the wet season (typically November through May) or infrequent precipitation events such as summer thunderstorms.

Soil compaction from heavy equipment can also increase runoff and subsequently increase the potential for erosion in disturbed areas. Disturbance areas would be minimized through the establishment of activity areas and clear markers (e.g., fencing, flagging) to designate the work limits, per environmental commitment EC-GS-1[4.3-2a] (see Table 2-2 and Appendix E). Erosion control measures would be implemented during the rehabilitation activities to protect exposed soils and minimize erosion, in accordance with EC-GS-2 [4.3-2b]. Indirect effects on water quality of the Trinity River are discussed in section 3.11 – Water Quality.

Surface and subsurface geology and soil conditions in the activity areas were evaluated as part of the design process, and the types of alluvial material (e.g., cobble, gravel, fines) available for the rehabilitation activities were characterized to determine how much material could be re-used on-site. Where fill placement would occur, these areas would initially be exposed to water erosion from the river, particularly during high flow and flood events, but the newly created features are expected to stabilize after grading efforts are completed, initial erosional events occur, and vegetation is re-established in disturbed areas. Sediment would be transported downstream to be deposited on downstream alluvial features as part of the natural riverine process. The overall effects on river geomorphology would benefit aquatic resources and result in more natural alluvial processes that would result in an increase in the size, amount, and complexity of alluvial features that support diverse aquatic habitat, as discussed further in section 3.12 – Fishery Resources.

Cobble, gravel, and other mineral materials associated with alluvial and dredge tailings deposits in the project ESL would be used onsite to enhance the in-channel and riverine activity areas as part of the rehabilitation activities. During the design process, the boundaries of upland activity areas were revised to avoid affecting adjacent tailing deposits and other sensitive features. The processing and reuse of alluvial material excavated from in-channel and floodplain activity areas would minimize the need to obtain these materials from adjacent tailings deposits and other off-site sources. Some alluvial material may be imported from other rehabilitation sites available to the TRRP or from local commercial sources, depending on the quality and quantity required. The mineral materials used for the rehabilitation activities would be incorporated into the riverine and riparian environment.

Implementation of environmental commitments specific to erosion would minimize the potential for soil erosion and adverse effects on the river and its floodplain during the rehabilitation activities. Rehabilitation activities are intended to modify the geomorphology of the river in the project ESL to benefit aquatic resources and fluvial processes.

With the inclusion of CEQA mitigation measures EC-GS-1[4.3-2a] and EC-GS-2 [4.3-2b] described in this section, impacts under CEQA related to geomorphology and soils considered under this resource topic would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under Alternative 2, impacts to geomorphic processes and soils resources would remain similar to existing conditions. Therefore, there would be no impacts to these processes or resources as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.10 HYDROLOGY AND FLOODING

3.10.1 Affected Environment

The project ESL encompasses approximately 66 acres and a 0.3-mile-long reach of the Trinity River about 25 river miles downstream of Lewiston Dam. The Trinity River Division of the Central Valley Project (TRD) regulates flow in the 40-mile reach of the river downstream of Lewiston Dam in accordance with the 2000 ROD for the Trinity River Mainstem Fishery Restoration EIS. Since 2005, the flow schedule has been adjusted annually based on water year type and ranges from 369,000 acre-feet (af) in critically dry years to 815,000 acre-feet in extremely wet years. The minimum baseflow is approximately 450 cubic feet per second (cfs). Median flows experienced in various water year types range from 4,800 cfs in dry years to 16,850 cfs in extremely wet years as measured at the Junction City stream gage (Hoopa Valley Tribe Design Group 2018). The 100-year flood is defined as 58,810 cfs.

Streamflow in the project ESL exhibits seasonal patterns that reflect a combination of flow releases from Lewiston Dam and natural tributary accretion. During the late summer and fall, Lewiston Dam releases to the Trinity River range from 300 cfs to 450 cfs; contributions from tributaries upstream of the project ESL are minor. Reclamation has periodically increased releases in late summer–early fall for short periods of time to respond to water quality concerns downstream in the Klamath River. Between November and May, flow releases from Lewiston Dam are augmented by increased tributary flow and surface runoff. The tributaries can also cause large floods during intense winter storms, leading to high peak flows in the project ESL. In May, peak flows originating from dam releases are typically followed by receding flows in the summer.

The Trinity River Flood Insurance Study (FIS) mapped the 100- and 500-year floodplains using a hydraulic analysis conducted by the California Department of Water Resources (DWR), Northern Region Office (FEMA 2016). The FIS modeled the reach of the Trinity River from just downstream of the North Fork Trinity River to Lewiston Dam (RM 72.43 to 110.96). It also included the development of approximate hydraulic models for seven tributaries to the Trinity River to aid in improving flood zone A mapping. This analysis used the best available topographic and flow data, provided in part by the TRRP.

The river's floodway was determined from a floodplain encroachment analysis performed by DWR for the TRRP using methods consistent with the FEMA requirements. The floodway is defined as the channel of a river or watercourse and the adjacent lands that must be reserved in order to discharge the base flood[18] without cumulatively increasing the water surface elevation more than 1 foot.

Except for some portions of staging and upland activity areas, most of the project ESL is within the 100-year floodplain, as defined in the 2016 FIS, and is subject to section 29.4 of Trinity County's zoning ordinance (Flood Hazard Zoning District or Flood Hazard Overlay Zone). This section of the County's ordinance requires a floodplain development permit; provisions of this section require that "encroachments shall not result in any increase in [the base] flood elevation during the occurrence of the base flood discharge."

3.10.2 Environmental Consequences

Alternative 1

Under Alternative 1, the elevation and extent of the Trinity River floodplain would be modified through the activities described in Chapter 2. This alternative was developed to ensure that none of the activities within the

[18] Flood having a one-percent chance of being equaled or exceeded in any given year, also referred to as the "100-year flood."

limits of the 100-year floodplain would conflict with the provisions of Section 29.4 of Trinity County's zoning ordinance.

Through the design and review process, a number of activity areas (e.g., U-2) were relocated to areas upslope of the 100-year floodplain. No structures or facilities are in activity areas below the FEMA base flood elevation (BFE). A key element in the selection of activity areas and subsequent engineering designs for activities in these areas was to ensure that encroachments into the floodway would not result in an increase in the BFE near structures during the occurrence of the base flood discharge within the project ESL. The hydraulic analysis conducted by McBain Associates and the Hoopa Valley Tribe used the FEMA-approved model developed for the 2016 FIS. This analysis indicates that removing all the excavated material from the riverine rehabilitation areas and placing it as coarse sediment within the channel or above the BFE in upland activity areas would not result in an increase in the FEMA BFE near structures on private property (Hoopa Valley Tribe Design Group 2019).

This alternative was developed to be self-perpetuating and to dynamically evolve in response to changes in the flow and sediment regime. By increasing the area and timing of floodplain inundation, both IC and R activity areas would expect periodic increases in deposition and transport of sediment and woody debris, which could result in changes in the floodplain elevations over time in response to both managed and uncontrolled flow events. In any event, it is expected that over time, IC and R activity areas will reach an equilibrium with the flow and sediment regime. Until riparian vegetation grows on the new floodplain features (e.g., R-6, R-10, R-12) a large flood could induce rapid meander migration in the downstream direction including the Chapman Phase A site. However, SLJ and WP features combined with revegetation efforts are expected to limit the migration extent of the meander complex. A 100-year return interval flow could scour some of the riffle features to varying degrees.

The displacement of channel and floodplain materials would have only a minimal potential to change the groundwater hydraulics in the project ESL. Groundwater table elevations and water volumes in the off-channel wetland downstream of activity area R-2 on river right would not be negatively affected because groundwater elevation at this location is associated with river stage. The tendency of the surface water–groundwater system to move to equilibrium conditions and the overall absence of impacts to the regional driving mechanisms of groundwater recharge (seasonal precipitation and Trinity River flow regimes) indicate that no long-term impacts on water table elevations would occur.

This alternative would not include activities intended to increase the BFE in the project ESL. Activities intended to modify the bed and banks of the Trinity River could have ancillary impacts on the bed and banks downstream.

While the fundamental objective of the activities associated with this alternative is to reestablish the alluvial features of the river, isolated instances of bank erosion could result in the loss of riverbank, sedimentation, deposition of sediment on alluvial features, and loss of riparian vegetation. The environmental commitments outlined in Table 2-2 and Appendix E are an integral component of this alternative. As a whole, this alternative was developed to ensure that no people or structures would be exposed to a risk of injury, death, or loss involving flooding and/or erosional processes.

The overall design of this alternative was developed to ensure that the hydrologic function and potential for flooding meet the project objectives, and no mitigation is required. Impacts under CEQA related to hydrology and flooding considered under this resource topic would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under Alternative 2, impacts to hydrology and flooding would remain similar to existing conditions. Therefore, there would be no impacts to hydrology or flood occurrence as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.11 WATER QUALITY

3.11.1 Affected Environment

The release of water from Lewiston Dam influences water quality in the Trinity River, primarily in the 40-mile reach downstream of the dam. These influences are particularly important with respect to temperature, turbidity, and suspended sediments.

The activities described in Chapter 2 of this EA/IS are subject to compliance with the Water Quality Control Plan for the North Coast Region (Basin Plan; Regional Water Board 2011). The beneficial uses for the Trinity River defined in the Basin Plan are listed in Table 4.5-1 of the Master EIR. In addition to municipal and domestic water supply, the beneficial uses affected by the water quality of the Trinity River are primarily those associated with supporting high-quality habitat for fish. Recreation (contact and non-contact) is another important beneficial use potentially affected by various water quality parameters (e.g., sediment and temperature).

The Basin Plan identifies both numeric and narrative water quality objectives for the Trinity River. Table 4.5-2 in the Master EIR summarizes the water quality objectives for each of the categories that have been established by the Regional Water Board to protect designated beneficial uses. Section 4.5-1 of the Master EIR also provides a comprehensive discussion of water quality parameters that influence water quality in the 40-mile reach of the Trinity River below Lewiston Dam.

In 1992, the Environmental Protection Agency (EPA) added the Trinity River to its list of impaired rivers under the provisions of Section 303(d) of the Clean Water Act (CWA) in response to a determination by the State of California that the water quality standards for the river were not being met due to excessive sediment. In 2001, the EPA established a Total Maximum Daily Load (TMDL) for sediment in the river. The Regional Water Board has continued to identify the Trinity River as impaired in subsequent listing cycles. The primary adverse impacts associated with excessive sediment in the Trinity River pertain to degradation of habitat for anadromous salmonids. The restriction of streamflow downstream of the TRD has greatly contributed to the impairment of the Trinity River below Lewiston Dam (EPA 2001).

Due to the location of the site, the effects of the TRD are less than those documented in TRRP monitoring efforts upstream of Douglas City at about RM 92.6. Data from ongoing sediment transport monitoring suggest that below Douglas City, additional streamflow and sediment contributions from Indian, Weaver, and Reading creeks significantly reduce the coarse sediment and streamflow deficits. Below Douglas City, dam releases and natural runoff events are generally capable of transporting sediment influxes. Local fishers have expressed concern that TRRP gravel augmentation efforts have resulted in the filling, or partial filling, of fishing holes that serve as adult holding habitat with gravel. According to comments provided to the TRRP on this topic, the specific fishing holes referred to are all upstream of Douglas City.

Water temperature is one of the most important variables affecting salmonids and other aquatic organisms (Carter 2005). It influences feeding rates and growth, metabolism, development, timing of migration, spawning and rearing, and the availability of food. Since the construction of the TRD, discharge from Lewiston Dam has played an important role in regulating water temperatures in the Trinity River downstream. Depending on the type of water year and time of year, this effect diminishes to varying degrees with distance from Lewiston Dam.

A key objective of the TRRP's flow management is to improve the thermal regimes for all anadromous salmonid life stages that use the Trinity River. The TRRP has been using flow management practices to meet specific temperature management targets, and temperature monitoring data have been collected as part of the Adaptive Environmental Assessment and Management process since 2002. The project ESL is located between two water temperature monitoring sites, Douglas City and Junction City, above Canyon Creek.

Water temperatures in the Trinity River through the project ESL are primarily influenced by flows, topography, and aspect. Flows in this reach typically exceed the temperature targets for short periods of time in the fall (Magneson and Chamberlain 2015). The river flows northwest through the project ESL with very little shade provided by topography or riparian vegetation. The extensive mining activities and infertility of dredge tailing deposits on both sides of the river inhibit the establishment of riparian vegetation.

The primary adverse impacts associated with excessive sediment in the Trinity River pertain to anadromous salmonid fish habitat, which the TRRP was formed to correct. Section 4.5.1 of the Master EIR provides a comprehensive discussion of this topic.

On May 20, 2015, the Regional Water Board issued a General Water Quality Certification (Order R1-2015-0028) to the TRRP under the auspices of Reclamation. This order implements portions of the Trinity River TMDL and provides an allowable zone of turbidity dilution (protective of sensitive aquatic life), within which turbidity levels shall not exceed 20 NTUs or 20 percent above naturally occurring background levels, whichever is greater. During in-river construction activities, the TRRP will monitor turbidity levels within 50 feet upstream of project activities (i.e., to serve as the natural background level) and 500 feet downstream of the in-river construction activities (point of compliance) that could increase turbidity. If naturally occurring background levels are greater than 20 NTUs, turbidity levels at the point of compliance shall not exceed 20 percent above the naturally occurring background level.

The Trinity River is typically very clear, with natural background turbidity levels in the range of 0 to 1 NTU during low-flow conditions (300 to 450 cfs). Due to the very low background concentrations during the summer, turbidity levels immediately downstream of the most carefully planned and implemented in-channel restoration activities will likely be increased by more than 20 percent above background levels, and plumes extending downstream of restoration activities may be visible.

Over the years, the TRRP has increasingly conducted in-channel work to create immediate aquatic habitat and to create conditions where river flows develop and maintain functioning river attributes (e.g., backwaters and alternating point bars). Through time various effective turbidity control measures for construction have developed. These include:

- **Structural containment** – Use structures such as earth barriers, K-rail containment dams, bladder dams, and silt curtains to isolate turbid water from the active channel. These structures typically remain in place until the riverine features are fully excavated and graded.
- **Processing** – Gravel and cobbles excavated from alluvial deposits (e.g., floodplain, dredge tailings) are processed and in some cases, washed to help maintain low turbidity levels associated with placement of gravel and cobbles in or adjacent to the channel.
- **Pace of construction** – Controlling the pace of in-channel excavation and placement of alluvial material ensures that sediment input into the water column is consistent with permit requirements. This method requires direct field observations and real-time turbidity data obtained by onsite construction monitoring personnel.
- **Flushing** – Within structurally contained areas, turbid water is flushed by allowing flow into the work area and regulating the outflow as a function of measured turbidity levels. Small weirs are used to adjust inflow and outflow rates to ensure permit requirements are met.
- **Channel bottom cleaning** – This method entails the removal of silt- and clay-sized sediment from the channel bottom, typically by pumping or hand excavation. This method requires effluent to be pumped to containment ponds in upland areas and subsequently incorporated into site rehabilitation efforts.

TRRP monitoring data also indicate that turbidity levels downstream of the rehabilitation sites may be increased by overland flow during the initial high-flow events that occur following completion of construction activities.

During springtime high-flow releases from Lewiston Dam (e.g., clear water released from the dam during channel maintenance flows), turbidity levels at monitoring locations 500 feet or more downstream of recently completed channel rehabilitation sites may be more than 20 percent greater than background levels. However, when the high flows are caused by natural stormwater runoff in the Trinity River Basin and the river is already carrying a substantial sediment load (e.g., turbidity greater than 40 NTUs), background levels are generally not increased by more than 20 percent at monitoring locations downstream of recently completed rehabilitation activities.

During natural high-flow events, the relative addition of fine sediment from recently completed channel rehabilitation projects is minimal compared to the sediment load already being transported by the river. Furthermore, in the Trinity River watershed where wildfire has occurred over the last several years (e.g., the Oregon fire in 2014, Helena fire in 2017, Carr fire in 2018), it is expected that water quality in the restoration reach will be strongly influenced by run-off from burned areas during storm events. In these run-off events, the contribution of fine sediment associated with TRRP projects is expected to be relatively minimal compared to loading from burned watersheds.

3.11.2 Environmental Consequences

Alternative 1

The activities incorporated into this alternative have been developed to meet the objectives described in section 1.3 of this EA/IS and are intended to reestablish functional fluvial and alluvial processes in and to some extent downstream of the project ESL. In the following discussion, the environmental consequences of this alternative on water quality and the associated beneficial uses of the Trinity River focus on three water quality parameters: sediment, temperature, and turbidity.

Due to the extremely low background turbidity during low-flow conditions, reduction of turbidity levels to within 20 percent above background is generally not feasible, even with the environmental commitments listed in Table 2-2 and Appendix E. However, short-term increases in turbidity levels that occur during permitted restoration activities are generally not considered to be biologically detrimental to aquatic organisms because their duration is short and fish are able to move away from the activity area. Monitoring turbidity increases during implementation of previous TRRP projects has shown that periods of increased turbidity are brief (generally less than 24 hours) and that beneficial uses continued to be protected. In addition, the quantity of fine sediment introduced to the river during activities at low flows is typically small and is restricted with respect to timing and location; furthermore, not all activity areas are experiencing disturbance at the same time.

The effects of this alternative on water quality associated with in-channel activities and lowering of floodplains would change the location and nature of sediment in and adjacent to the low-flow channel. The placement of spawning-sized gravel at X-1 and X-2 crossings necessary to access the activity areas on river left would add approximately 300 cubic yards of material to the river; the gravel used for these crossings would be sized to ensure that it would mobilize during high flows within the first year following construction and provide some augmentation of spawning habitat downstream.

As described in Chapter 2 and Appendix E, Environmental Commitments and design measures would be incorporated into the construction contract to minimize the potential for hazardous materials (e.g., hydraulic fluid) from leaking or otherwise being discharged into the river at a crossing or other locations where equipment is working in the water. These commitments and measures would be adequate to protect the beneficial uses of the Trinity River.

This alternative is intended to reconnect the existing floodplains with the channel, which would result in shallow depths and slow velocities across a broader range of streamflows than those currently being provided. Other activities incorporated into this alternative would increase the complexity of the channel to increase habitat for all

life stages. Due to the location and aspect of the river in the project ESL, water temperature in the river below Lewiston Dam is heavily influenced by flow releases from the dam as well as input from tributaries downstream. The east-west orientation of this reach also influences the degree to which afternoon shading affects water temperature.

This alternative would include clearing and grading several activity areas, some of which contain riparian vegetation. Functionally, the existing riparian vegetation has little influence on water temperature through this reach. Still, it does provide shaded riparian area habitat for aquatic organisms at isolated locations along the channel margin. While there would be some localized effects on water temperature as a result of clearing and grading activities, the expansion of the main channel (IC-2) and lowering of the floodplains (R-6, R-10, and R-12) are expected to establish more riparian vegetation. Revegetation efforts associated with these activities would increase functional riparian vegetation, which in turn would increase shade and improve habitat for juvenile salmonids along the margins of these features under a wide range of flow conditions, including those that may occur during late-summer releases when air temperatures are high.

The activities described in Chapter 2 and Appendix D for this alternative would temporarily increase turbidity and total suspended solids in the Trinity River. The incorporation of the environmental commitments listed in Table 2-2 and Appendix E (EC WQ-1 [4.5-1a, b], EC WQ-2 [4.5-1c], EC WQ-3 [4.5-1d], EC WQ-4 [4.5-1e, 4.5-2a-2c] and EC WQ-5 [4.5-3a -3c]) in conjunction with the design elements and construction criteria described in Appendix D (e.g., in-river construction, water pollution prevention, and construction schedules) are intended to limit turbidity and suspended sediments in the Trinity River. Additionally, the river's edge and in-channel construction activities would be staged to minimize potential turbidity effects. During in-channel construction activities, increases in turbidity levels could occur because of the excavation of alluvial material.

Connection of isolated and newly constructed side channels (e.g., during the first flush of flowing water) would result in short-term increases in turbidity levels as this material is removed from and/or redistributed downstream. Fine sediments may be suspended in the river for several hours following construction activities; however, the project would be compliant with the conditions of the Program's General Water Quality Certification and is not expected to have a negative impact on beneficial uses.

The extent of downstream sedimentation would be a function of the size and mobility of the substrate. For example, fine-grained sediments such as silts and clays can be carried several thousand feet downstream of construction zones. In contrast, larger-sized sediments such as coarse sands and gravels tend to drop out of the water column within several feet of the construction zone. Collectively, the activities included in this alternative could result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially violate the Basin Plan objectives for turbidity in the Trinity River.

Two temporary crossings of the river at this site (X-1, X-2) would provide access for in-channel and riverine work areas. The low-flow channel crossings would be constructed of appropriately sized alluvial materials. Placement of alluvial fill materials could temporarily increase turbidity and suspended materials during and immediately following crossing construction. Removal and distribution of alluvial materials upon deconstruction of the low-flow channel crossing could also increase turbidity and suspended materials during and immediately following excavation.

With the inclusion of CEQA mitigation measures EC WQ-1 [4.5-1a, b], EC WQ-2 [4.5-1c], EC WQ-3 [4.5-1d], EC WQ-4 [4.5-1e, 4.5-2a-2c] and EC WQ-5 [4.5-3a-3c], impacts under CEQA related to water quality considered under this resource topic would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under Alternative 2, impacts on water quality and associated beneficial uses would remain similar to existing conditions. Therefore, there would be no impacts on water quality as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.12 FISHERY RESOURCES

This section describes the fishery resources and aquatic habitats that are known to occur in the project ESL and evaluate the impacts of the alternatives on these resources. The discussion of fisheries resources is based on detailed design reports prepared for the Chapman Ranch Phase B site by the Hoopa Valley Tribe Design Team. Information from a focused literature review, informal consultation with resource agencies, and observations made during site visits were also incorporated into this section. Additional details on fishery resources is discussed in the Master EIR (section 4.6 and Appendix G). The Magnuson-Stevens Fishery Conservation and Management Act and Essential Fish Habitat are also described in the Master EIR (section 4.6).

3.12.1 Affected Environment

The native anadromous species of interest in the mainstem Trinity River and its tributaries are Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss irideus*), and Pacific lamprey (*Entosphenus tridentatus*). There are two spawning races of Chinook salmon, spring- and fall-run, and two spawning races of steelhead, winter- and summer-run. The life histories and freshwater habitat requirements of these and other species and their distinct spawning populations are described in Appendix G of the 2009 Master EIR.

Resident native fish species found in the Trinity River Basin include game fish such as rainbow trout (*Oncorhynchus mykiss*) and non-game fish such as speckled dace (*Rhinichthys osculus*), Klamath smallscale sucker (*Catostomus rimiculus*), Pacific lamprey, Klamath River lamprey (*Lampetra similis*), three-spined stickleback (*Gasterosteus aculeatus*), coast range sculpin (*Cottus aleuticus*), and marbled sculpin (*Cottus klamathensis*). The abundance of resident native species and the factors affecting their abundance within the basin are not well understood; however, all these species evolved and existed in the Trinity River before the TRD and are presumably adapted to those conditions.

Non-native fish species found in the Trinity River include American shad (*Alosa sapidissima*), brown bullhead (*Ameiurus nebulosus*), green sunfish (*Lepomis cyanellus*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*) (USFWS, unpublished data). American shad occur in the lowermost portions of the Trinity River below Burnt Ranch Falls. Currently, brown trout are primarily limited to the upper portions of the river below Lewiston Dam, although some brown trout exhibit anadromous characteristics.

Special-status fish species with the potential to occur in the project ESL include:

- Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) of coho salmon
- Klamath Mountain Province steelhead ESU
- Upper Klamath-Trinity Rivers ESU Chinook salmon
- Pacific lamprey

In 2014, freshwater mussels were identified at a number of locations in the low-flow channel within the project ESL. In 2015, a number of ammocoete rearing areas were identified throughout the project reach.

In support of the TRRP, Reclamation developed a hydraulic model that has been used by the design teams to characterize existing and potential habitat within the project ESL for anadromous salmonid fry and presmolt life stages. Weighted useable area (WUA) is the metric used to characterize habitat under the existing conditions based on three attributes: depth, velocity, and cover. Table 3-3 provides WUA values in acres for both fry and presmolt life stages at flows ranging between 300 cfs and 12,000 cfs.

Table 3-3. WUA under Existing Conditions for Fry and Presmolt Habitat – Chapman Ranch Phase B Site

Modeled Flow (cfs)[19]		300	493	700	1,000	1,500	2,000	3,000	4,500	6,000	7,155	9,000	11,000
WUA in acres at a Specified Flow	Fry	4.4	4.0	3.7	3.4	3.5	3.7	5.1	6.8	7.9	9.1	12.6	14.8
	Presmolt	5.3	4.9	4.6	4.2	4.2	4.2	5.3	7.1	8.2	9.4	13.2	15.7

3.12.2 Environmental Consequences

Alternative 1

A primary objective of Alternative 1 is to increase spawning and rearing habitat for anadromous salmonids in a manner that benefits coho salmon and other special-status fish species.

Activities related to implementation of this alternative include the following environmental commitments, as outlined in Table 2-2, to reduce impacts to fishery resources: EC FR-1 [4.6-1a, 1b], EC FR-2 [4.6-4a-4e], EC FR-3 [4.6-4f], EC FR-4 [4.6-5b], and EC FR-5 [4.6a-6d]. This alternative would result in the localized loss of vegetation and general disturbance to the bed and banks of the Trinity River. Removal of vegetation and soil could accelerate erosion processes in the project ESL and increase the potential for sediment delivery to the Trinity River. As discussed in section 3.11, Water Quality, this alternative would result in some project-related effects on erosional processes and changes in the sediment regime within the project ESL and, to a limited extent downstream. The excavation and placement of alluvial materials within the channel and associated floodplain of the Trinity River would result in changes to the amount and character of sediment that may be mobilized post-construction.

In certain IC, SLJ, and R activity areas, processed alluvium (gravel and cobble) would be placed within and adjacent to the low-flow channel in a manner intended to increase spawning and rearing habitat for coho salmon and other salmonids. However, the environmental commitments listed in the above paragraph have been incorporated into this alternative to minimize the release of fine sediment into the water column during or following construction and to reduce the impacts to existing spawning and rearing habitat for short periods of time, primarily in conjunction with elevated turbidity levels. The placement and use of several low-water fords in the Trinity River would require increasing the amount of coarse sediment at several shallow riffles during in-river construction windows, possibly for several months. The presence and use of the fords across the Trinity River would occur at locations occasionally used by salmonids as spawning and rearing habitat. Proportionally, these fords would occupy a small percentage of the available habitat in the project reach during construction.

Exposed soils in the upland and staging areas are susceptible to mobilization from rainfall during early-season runoff events. In-river excavation is planned as part of Alternative 1; therefore, it is expected that excavation and operation of heavy equipment would re-suspend silt and sand, resulting in localized and temporary increases of

[19] The Trinity River minimum baseflow is approximately 493 cfs with 300 cfs released from Lewiston Dam and another 193 cfs contributed by tributaries. Median flows experienced in various water year types range from 4,800 cfs in Dry years to 16,851 cfs in Extremely Wet years as measured at the Junction City stream gage. 7,155 is considered the "normal" year bankful, and the channel forming discharge upon which the project design is based.

suspended sediment and turbidity. The operation of heavy equipment in the active channel during these activities would likely re-suspend streambed sediments. Any juvenile salmonid salmon rearing in the area during in-channel construction could be temporarily displaced, or their social behavior could be temporarily disrupted by turbidity created during this activity.

Erosion and deposition of fine sediments associated with the implementation of this alternative are expected to be localized and temporary. Some fine-textured sediment may settle near or on spawning habitat located downstream of riverine activity areas, but this sediment is not expected to impair redd excavation or spawning activities. Excavation, grading, and coarse sediment addition within the channel would occur only during low-flow conditions between July 15 and September 15 before the spawning period. In-river work, including construction of temporary crossings, may briefly displace adult salmonids using holding habitat within the project ESL to other holding habitat either upstream or downstream of the project reach due to transient turbidity and short-duration sediment plumes created by construction activity. Juvenile salmonids using this reach during this timeframe could also be temporarily displaced, or their social behavior could be temporarily disrupted due to increases in turbidity or suspended sediment. Behavioral disruption, even temporarily, could result in some increased vulnerability to competitive interactions or predation for salmonids. These temporary impacts were anticipated and addressed in the 2000 Biological Opinion (BiOp) (NMFS 2000 and 2006) and associated incidental take statement for the ROD as well as the amended BO for in-river work.

In December 2019, TRRP staff submitted a Biological Assessment (BA) to the NMFS and initiated formal consultation on the effects of new TRRP sediment management and channel rehabilitation techniques, as well as the potential effect of floodplain restoration work throughout the Trinity River watershed, rather than only on the mainstem Trinity River. Implementation strategies and conservation measures described in the 2019 BA will be employed during construction starting in summer 2020 and the TRRP will retain ESA coverage under the 2000 BiOp until the 2020 BiOp is completed. Adult Pacific lampreys migrate upstream from spring through early summer to spawn. Larval lampreys inhabit the river year-round. Siltation of nests that may be built-in suitable habitats (i.e., low-slope riffles) could occur. Filter feeding by larval lampreys could be disrupted by an increase in suspended sediments caused by construction-related erosion, although this impact would be very localized and temporary.

In addition to ammocoetes occupying alluvial substrate, freshwater mussel populations occur at locations through the project ESL. Mussel beds observed within the boundaries of in-channel activity areas will be flagged for avoidance and, to the extent feasible, individuals will be relocated to nearby appropriate habitat that would not be disturbed (see EC-VW-10). Some mussels and lampreys may inadvertently be physically displaced during construction. This effect would be minimal to either species due to the large populations known to occur at other locations that would be protected within the project ESL as well as upstream and downstream.

The environmental commitments incorporated into this alternative would be implemented in conjunction with the construction activities described in Chapter 2. In addition to the typical practice of refueling construction equipment at upland and construction activity areas (U-1, U-2, U-4 and U-5; and C-1, C-2 and 2a, C-3, C-4, C-5, C-6, and C-7), this alternative also includes activities that would result in mechanized equipment (e.g., trucks, excavators) crossing and/or operating in the active channel for short periods. As a result, minor fuel and oil spills could occur, and there would be a risk of larger releases. Without rapid containment and clean up, these materials could be toxic, depending on the location of the spill in proximity to water bodies in the project ESL. Oils, fuels, and other contaminants could have short-term effects on the various life stages of salmonids and other anadromous fish that are using habitat near construction activities; however, this effect is not anticipated to affect individual organisms or populations negatively.

Coho salmon and other special-status aquatic species also occur in the Trinity River, and suitable salmonid rearing habitat is used in the project ESL year-round. Adult coho and other salmonids migrate through the project ESL and use suitable spawning habitat throughout the 40-mile reach of the Trinity River below Lewiston Dam.

Direct injury to, or mortality of, coho salmon and other salmonids could occur during in-river construction and construction of the low-flow channel crossings. These in-water work activities would be conducted only during late-summer low-flow conditions (e.g., July 15 to September 15), thus minimizing the potential for direct mortality to rearing coho and other salmonids because this period corresponds to a time of the year when the fewest number of juvenile salmonids are known to occur in the project reach. Table 3-4 illustrates the amount of WUA fry and presmolt salmonid habitat that would be provided with the implementation of the proposed action as flows increase through the project reach.

NMFS expects that all displaced juvenile fish, including coho salmon, would find suitable habitat in river reaches upstream or downstream of the project reach because juvenile rearing habitat in the mainstem Trinity River is likely under-saturated during summer and fall months (NMFS 2006). The construction period identified above would completely avoid the spawning period for coho salmon; therefore, direct impacts on adult coho salmon or their eggs/alevins (yolk-sac fry) would not occur.

A small, temporary, but uncertain level of stranding of coho salmon fry could occur on the newly constructed inundation surfaces during rapidly receding flood-flow periods in the winter and early spring when fry are emerging. Although stranding of fry under such receding flood conditions occurs naturally, the constructed features could increase the potential for stranding. As fluvial channel migration occurs through these surfaces, the potential for fry stranding is expected to equilibrate to that of a natural stranding risk.

Table 3-4. WUA for Fry and Presmolt Habitat Under the Proposed Action – Chapman Ranch Phase B Site

Modeled Flow (cfs)		300	493	700	1,000	1,500	2,000	3,000	4,500	6,000	7,155	9,000	11,000
WUA in acres at a Specified Flow	Fry	5.9	6.2	6.3	6.4	6.2	6.0	7.1	9.2	10.9	12.6	15.0	16.0
	Presmolt	6.2	6.6	6.8	7.0	6.8	6.6	7.2	9.1	10.9	12.6	15.3	16.5

As indicated in Table 3-5, Alternative 1 would result in an increase in rearing habitat in the project reach over a range of flows up to 11,000 cfs. These increases in habitat for extremely young fish can be critical for their survival. Percent increases in WUA were greatest at lower flows where WUA was considered to be most limited under existing conditions. It is not expected to have a long-term effect on the amount or utility of holding habitat for adult salmonids. These beneficial effects will also apply to varying degrees to other aquatic organisms that use habitat in this reach. WUA for both life stages would peak at 11,000 cfs.

Table 3-5. Increase in WUA Habitat Under Alternative 1– Chapman Ranch Phase B Site

Modeled Flow (cfs)		300	493	700	1,000	1,500	2,000	3,000	4,500	6,000	7,155	9,000	11,000
Percent Increase in WUA at a Specified Flow	Fry	33	56	72	89	74	63	38	34	37	38	19	8
	Presmolt	16	35	48	64	61	56	36	29	33	33	16	5

With the inclusion of CEQA mitigation measures EC FR-1 [4.6-1a, 1b], EC FR-2 [4.6-4a-4e], EC FR-3 [4.6-4f], EC FR-4 [4.6-5b], and EC FR-5 [4.6a-6d] described in this section, adverse impacts under CEQA related to fisheries would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under the no action alternative, there would be no effects on spawning and rearing habitat or WUA for fry and presmolt salmonids other than those associated with current ongoing actions because the project would not be constructed. As described in Chapter 1, the TRRP and other entities have been implementing channel rehabilitation projects since 2005. These projects continue to affect the Trinity River with regards to flows, sediments, channel morphology, and riparian vegetation and the associated influence on habitat for aquatic organisms. There would be no improvement to anadromous fish habitat as a result of this alternative.

Under this alternative, there would be no risk of accidental spills of hazardous material because the project would not be constructed. Construction-related mortality to rearing salmonids would not occur because the project would not be constructed. Loss of spawning, rearing, and holding habitat would not occur because the project would not be constructed. Impacts on fishery resources would remain similar to existing conditions. Therefore, there would be no impacts on fishery resources as defined in CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.13 VEGETATION, WILDLIFE, AND WETLANDS

3.13.1 Affected Environment

The project ESL supports a diversity of plant communities and wildlife habitats typical of the Trinity River corridor, including a number of non-native and invasive plant species associated with historic mining and a managed flow regime. No ESA listed or special-status plant species were identified during botanical surveys in the project ESL. Wildlife habitats described in this section are based on the California Wildlife Habitat Relationships (CWHR) system. These wildlife habitats are summarized illustrated on Figure 3-1.

The dominant habitat types include barren, montane riparian, and (European invasive) annual grassland; these habitat types make up more than 68 percent of the habitats present in the project ESL. Douglas-fir, Riverine, ponderosa pine, montane-hardwood-conifer, montane hardwood, blue oak-foothill pine, urban, mixed chaparral, and valley foothill riparian are the habitats that make up the remaining portions of the project ESL. Dominant plant species in these 12 habitats include gray pine (*Pinus sabiniana*), canyon live oak (*Quercus chrysolepis*), Oregon white oak (*Quercus garryana*), ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*), with occasional Pacific madrone (*Arbutus menziesii*) and incense cedar (*Calocedrus decurrens*). Understory vegetation includes white leaf manzanita (*Arctostaphylos viscida*), greenleaf manzanita (*A. patula*), birch leaf mountain mahogany (*Cercocarpus betuloides*), Himalayan blackberry (*Rubus armeniacus*), Pacific poison-oak (*Toxicodendron diversilobum*), rattail sixweeks grass (*Festuca myuros*), soft brome (*Bromus hordeaceus*), redstem filaree (*Erodium cicutarium*), black mustard (*Brassica nigra*), Maltese star-thistle (*Centaurea melitensis*), miniature lupine (*Lupinus bicolor*), and English plantain (*Plantago lanceolata*). Himalayan blackberry is pervasive along the right bank in the vicinity of crossing X-1. Upland invasive species include black locust (*Robinia pseudoacacia*), non-native grasses, and yellow star-thistle (*Centaurea solstitialis*). These species primarily occupy open areas associated with alluvial terraces and dredge tailings.

The 40-mile reach of the Trinity River downstream of Lewiston Dam may support several special- status plant species, including species listed under the federal and state ESAs; BLM and Forest Service Sensitive Species; and species considered rare, threatened, or endangered in California based on the Rare Plant Ranks (see Table 4.7-1 in the Master EIR for a complete list of species and their status). Botanical surveys were conducted at the Chapman Ranch Phase B site in May and July 2013 and March and June 2014 by Trinity County Resource Conservation District botanists; no special-status plant species (including plants listed on the Forest Service or BLM sensitive species list) were identified. The boundary of the project ESL was revised in 2017, and additional botanical surveys were conducted in March, May, and June 2018 by Stantec Consulting Services Inc. (Stantec) biologists in the areas not covered by the previous surveys. No special-status plant species were identified during the 2018 surveys. During 2018 post-fire recovery monitoring, the Forest Service documented the potentially invasive

aquatic organism didymo *(Didymosphenia geminata)* upstream and downstream of the Chapman Ranch Phase B site[20] (Forest Service 2018).

The Trinity River is the primary drainage feature in the project ESL. It is considered a water of the United States and a navigable water that is subject to the jurisdiction of USACE. The main channel of the Trinity River, classified as Perennial Stream by the USACE, and totals 4.11 acres (2,415 linear feet). Table 3-6 and Figure 3-2 summarizes the wetlands and non-wetland waters of the United States that occur within the project boundary.

Table 3-6. Summary of Waters of the United States in the Project ESL

Waters of the United States	Total Acreage	Total Linear Feet	Cowardin Type[21,22]
Riparian Wetland	5.89	N/A	PFO, PSS
Seasonal Wetland	0.01	N/A	PEM
Other Waters: Intermittent Stream	0.02	265	R4SB
Other Waters: Perennial Stream	4.11	2,415	R3UB, R3US
Total Waters of the United States	10.03	2,680	

There are two intermittent streams in the project ESL on the south side of the Trinity River. These streams convey water from upland areas near the outer limits of the project ESL into a linear wetland, then to a non-wetland water of the US, again to wetland, and eventually to the main channel of the Trinity River. These streams total approximately 265 linear feet and range between 2 and 10 feet wide at the ordinary high water mark, totaling approximately 0.02 acre.

A total of 9 riparian wetlands encompassing approximately 5.89 acres were delineated in the project ESL. These wetlands are located along the main and side channels of the Trinity River; they contain a dominance of woody riparian and herbaceous species, such as willows (*Salix* spp.), white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), Himalayan blackberry (*Rubus armeniacus)*, reed canary grass (*Phalaris arundinacea*), and mugwort (*Artemisia douglasiana*).

One seasonal wetland totaling approximately 0.01 acre is present in the project ESL as a shallow depression in a disturbed meadow along the A-9 activity area. Dominant vegetation in this seasonal wetland includes pale spikerush (*Eleocharis macrostachya*), annual rabbitsfoot grass (*Polypogon monspeliensis*) and annual hairgrass (*Deschampsia danthonioides*).

No wildlife species listed under the ESAs as threatened, endangered, or candidates for listing as threatened or endangered have been observed in the project ESL during field surveys. The highly disturbed complex of dredge tailing deposits with isolated riparian and upland vegetation does not provide habitat for the northern spotted owl.

The riparian vegetation along the Trinity River, in association with adjacent and nearby chaparral and woodland habitats, provides connected habitat and travel corridors for various common wildlife species in an area that has been fragmented by rural residential development and road building. Common wildlife species include deer *(Odocoileus hemionus)*, river otter *(Lontra canadensis)*, beaver *(Castor canadensis)*, cliff swallow *(Hirundo pyrrhonota)*, and raccoon *(Procyon lotor)*.

[20] Some scientists believe that didymo is a non-native and invasive diatom that is easily transferred between watersheds, most commonly through recreational equipment such as boats, waders, and fishing gear.

[21] Note: The Cowardin classification system is a system for classifying wetlands, devised by Lewis M. Cowardin et al. in 1979 for the United States Fish and Wildlife Service.

[22] Cowardin Type abbreviations stand for Palustrine Forested (PFO), Palustrine Scrub-Shrub (PSS), Palustrine Emergent (PEM), Riverine Sand Streambed (R4SB), Riverine Mud Unconsolidated Bottom (R3UB), and Riverine Mud Unconsolidated Shore (R3US).

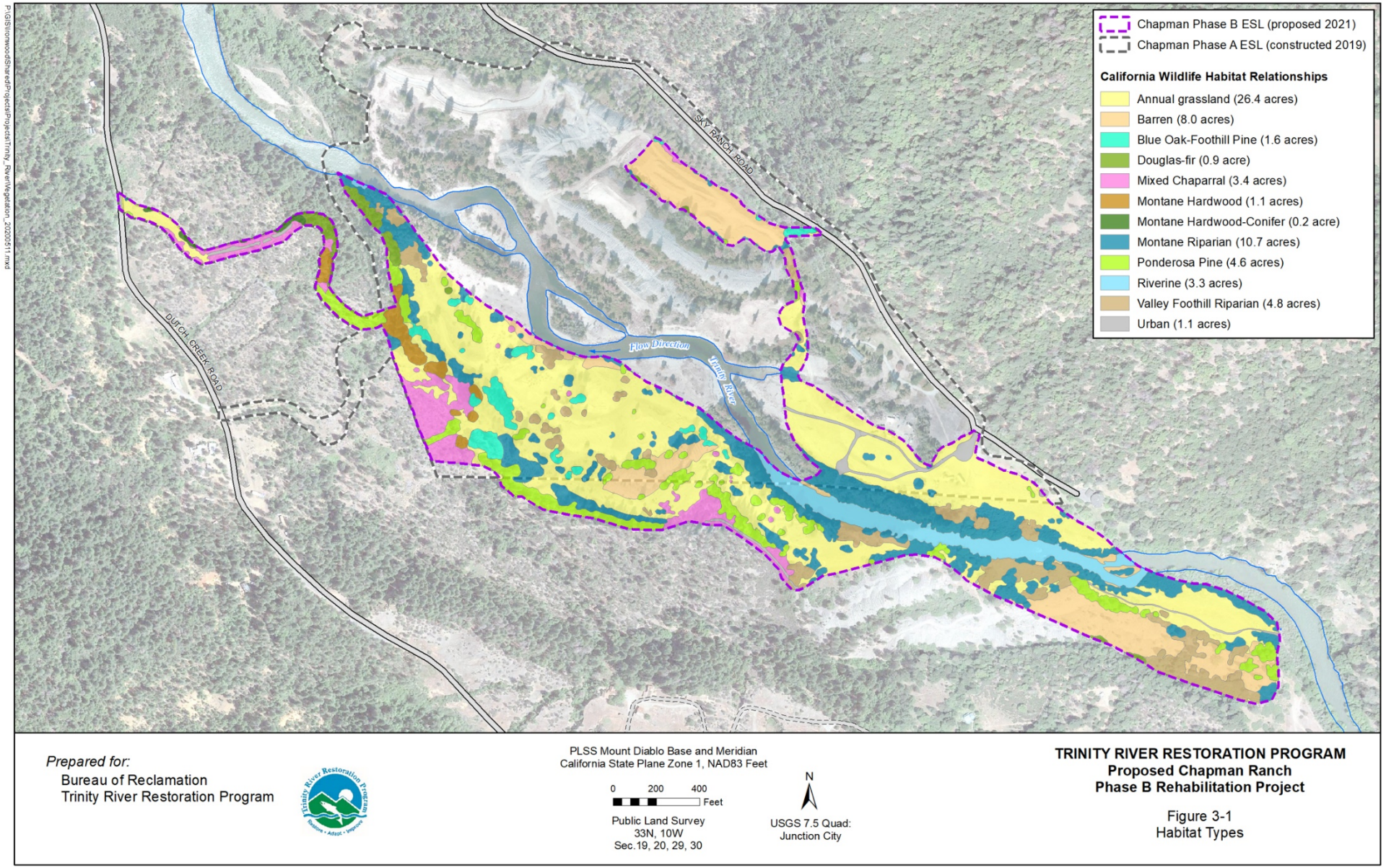
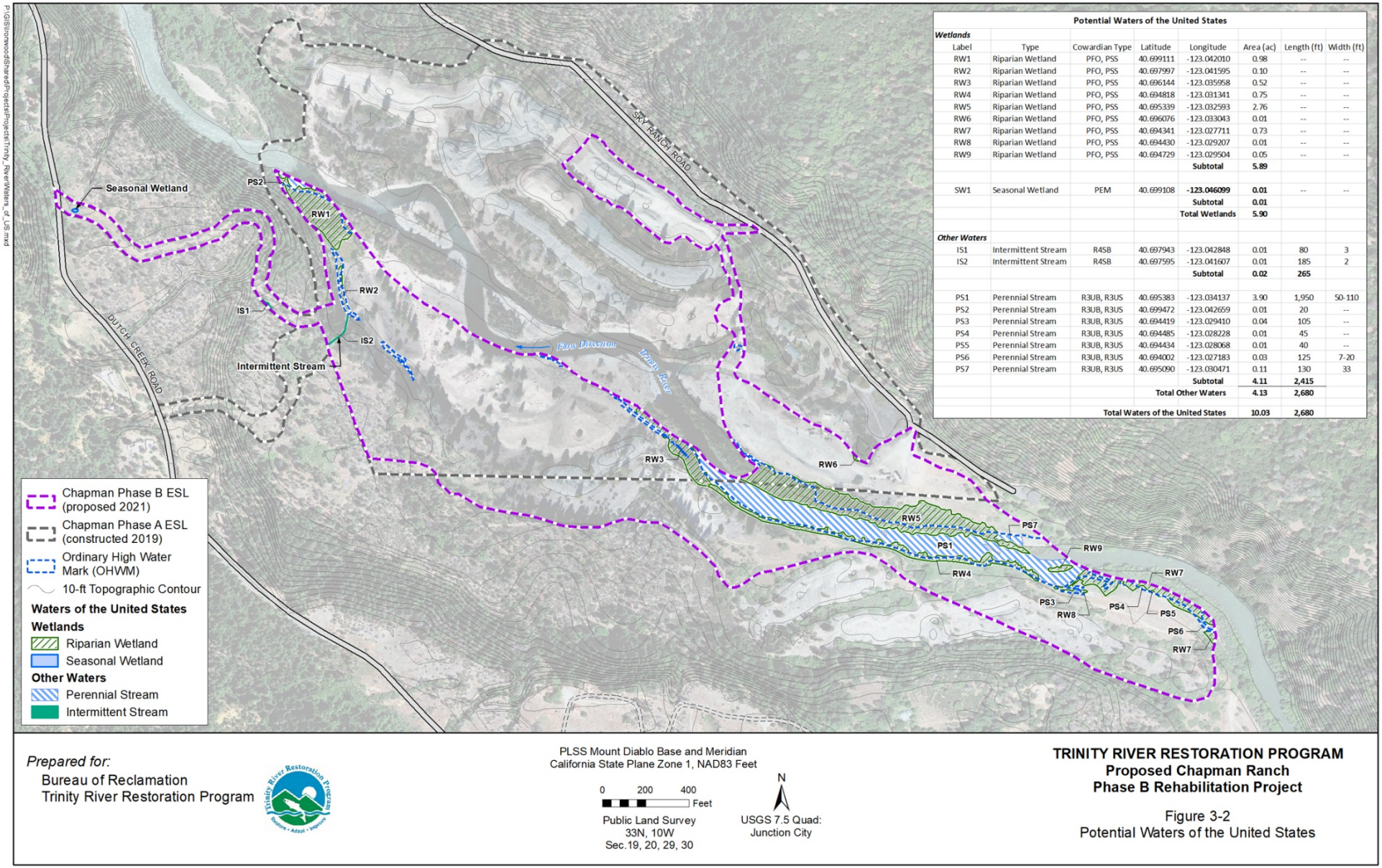


Figure 3-1. Habitat Types



Potential Waters of the United States

Wetlands							
Label	Type	Cowardin Type	Latitude	Longitude	Area (ac)	Length (ft)	Width (ft)
RW1	Riparian Wetland	PFO, PSS	40.699111	-123.042010	0.98	--	--
RW2	Riparian Wetland	PFO, PSS	40.697997	-123.041595	0.10	--	--
RW3	Riparian Wetland	PFO, PSS	40.696144	-123.035958	0.52	--	--
RW4	Riparian Wetland	PFO, PSS	40.694818	-123.031341	0.75	--	--
RW5	Riparian Wetland	PFO, PSS	40.695339	-123.032593	2.76	--	--
RW6	Riparian Wetland	PFO, PSS	40.696076	-123.033043	0.01	--	--
RW7	Riparian Wetland	PFO, PSS	40.694341	-123.027711	0.73	--	--
RW8	Riparian Wetland	PFO, PSS	40.694430	-123.029207	0.01	--	--
RW9	Riparian Wetland	PFO, PSS	40.694729	-123.029504	0.05	--	--
				Subtotal	**5.89**		
SW1	Seasonal Wetland	PEM	40.699108	**-123.046099**	**0.01**	--	--
				Subtotal	**0.01**		
				Total Wetlands	**5.90**		
Other Waters							
IS1	Intermittent Stream	R4SB	40.697943	-123.042848	0.01	80	3
IS2	Intermittent Stream	R4SB	40.697595	-123.041607	0.01	185	2
				Subtotal	**0.02**	**265**	
PS1	Perennial Stream	R3UB, R3US	40.695383	-123.034137	3.90	1,950	50-110
PS2	Perennial Stream	R3UB, R3US	40.699472	-123.042659	0.01	20	--
PS3	Perennial Stream	R3UB, R3US	40.694419	-123.029410	0.04	105	--
PS4	Perennial Stream	R3UB, R3US	40.694485	-123.028228	0.01	45	--
PS5	Perennial Stream	R3UB, R3US	40.694434	-123.028068	0.01	40	--
PS6	Perennial Stream	R3UB, R3US	40.694002	-123.027183	0.03	125	7-20
PS7	Perennial Stream	R3UB, R3US	40.695090	-123.030471	0.11	130	33
				Subtotal	**4.11**	**2,415**	
				Total Other Waters	**4.13**	**2,680**	
				Total Waters of the United States	**10.03**	**2,680**	

Figure 3-2. Potential Waters of the United States

Special-status wildlife species that have the potential to occur in the project ESL are discussed in Appendix I. Special status that are likely to be present within the project ESL include:

- Ring-tailed cat *(Bassariscus astutus)*, a California fully protected species.
- Bald eagle *(Haliaeetus leucocephalus)*, an endangered species under the California ESA, a BLM and Forest Service Sensitive species, and a California fully protected species.
- Foothill yellow-legged frog *(Rana boylii)*, a candidate for listing as threatened under the California ESA and a BLM and Forest Service sensitive species.
- Western pond turtle *(Emys marmorata)*, a California species of special concern and a BLM and Forest Service sensitive species.
- Several birds and bats that are BLM and Forest Service sensitive species or California species of special concern.

Most of the sensitive species are riparian species and may be found using trees in the montane and valley foothill riparian habitats or wetlands in the project ESL. Appendix I provides two tables that list the Forest Service and the BLM sensitive species that were considered in this EA as required under the NFMA and Redding RMP. A number of BLM and Forest Service sensitive species are not likely to occur within or adjacent to the project ESL. Additional details on these federal and state special-status species can be found in Section 4.7, Table 4.7-1, and Appendix C of the Master EIR.

3.13.2 Environmental Consequences

Alternative 1

Under Alternative 1, the proposed rehabilitation activities are intended to enhance the wetland, riverine, and upland (i.e., dredge tailings) habitats present in the project ESL to improve the quality of spawning habitat for anadromous fish species and other riparian-dependent species. Alternative 1 would convert 9.2 acres of non-riparian areas (e.g., terrace deposits) to the floodplain and riparian habitat within a 3- to 5-year post-project time frame. Temporary disturbance of these habitats in the project ESL during project implementation would occur in conjunction with vegetation removal, grading, and other construction activities. Figure 3-3 shows the location and potential impacts to riparian habitat; and Figure 3-4 shows the locations and potential impacts to wetland habitat.

There are several activity areas (e.g., C-2, C-4, C-6, R-1, U-2a, U-2b) in the project ESL where impacts to mature montane hardwood, ponderosa pine, and montane riparian would occur on lands managed by the BLM and the Forest Service. The BLM and Forest Service reviewed these areas and documented that this alternative (including vegetation removal) would meet the criteria under Exemption C of the Pechman Exemptions (October 11, 2006 Order) (see Appendix H of this EA/IS) because the activity areas are the focus of a riparian and stream improvement project where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning and where the stream improvement work is the placement of large wood, channel and floodplain reconstruction, or removal of channel diversions.

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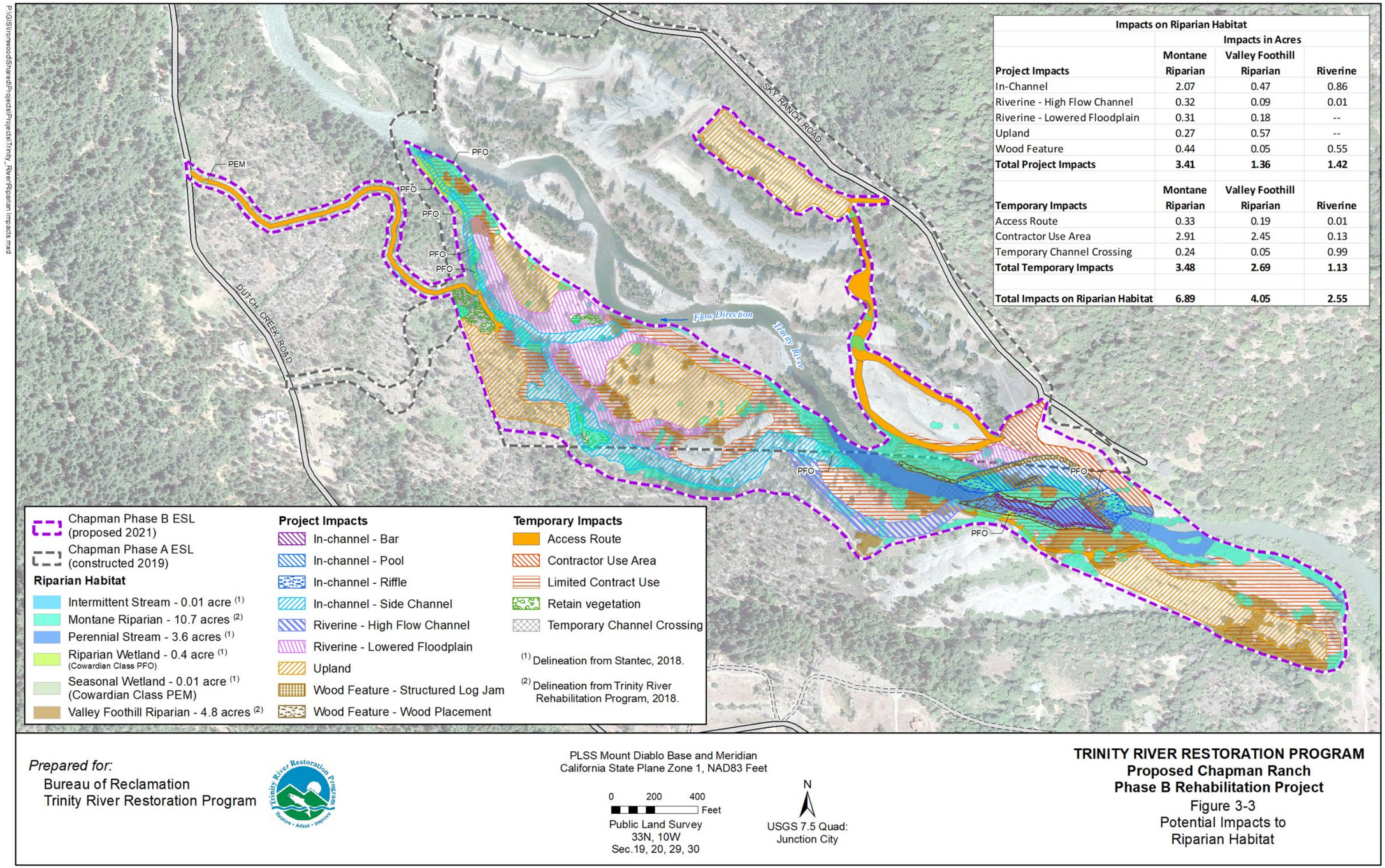
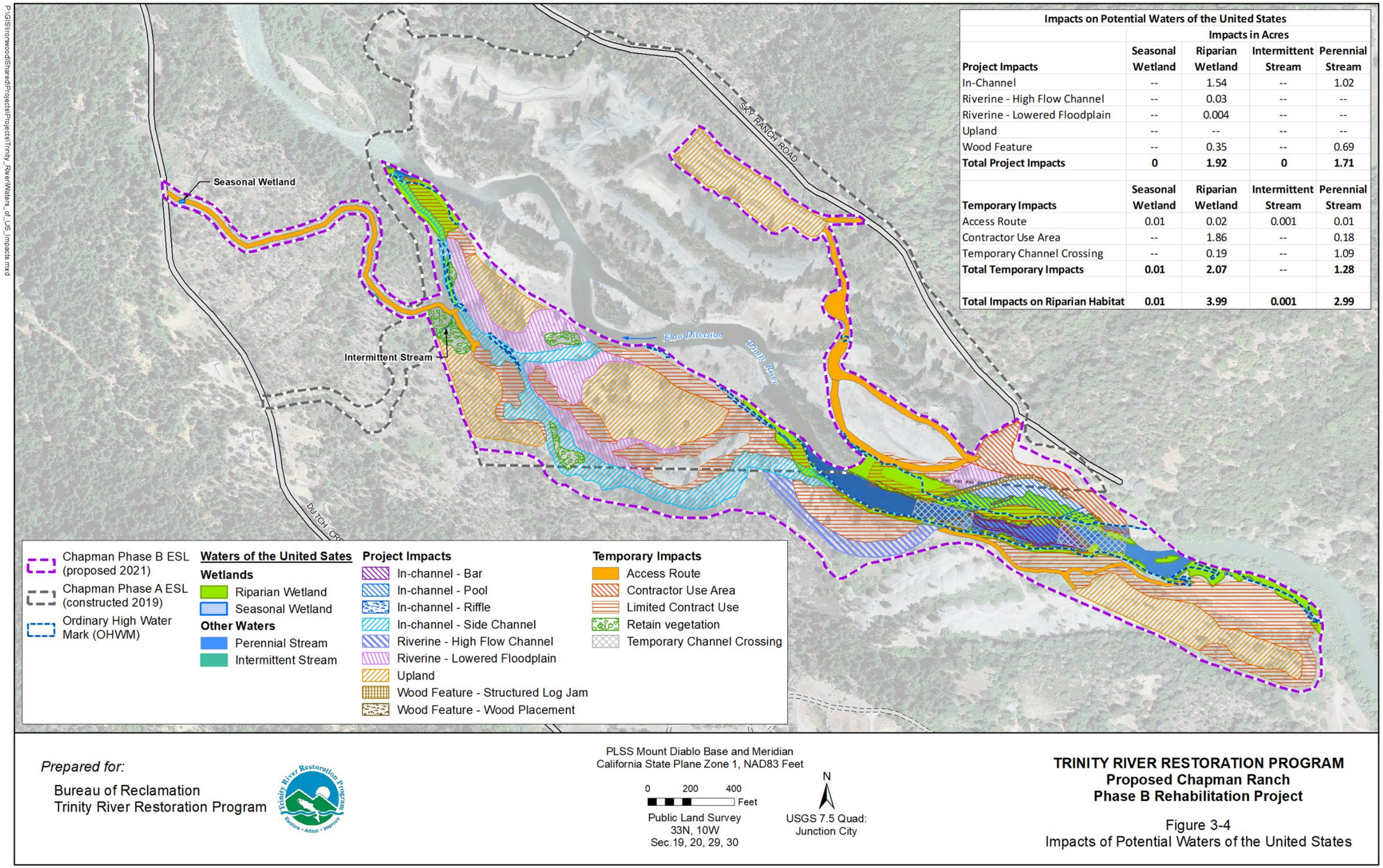


Impacts on Riparian Habitat			
	Impacts in Acres		
Project Impacts	**Montane Riparian**	**Valley Foothill Riparian**	**Riverine**
In-Channel	2.07	0.47	0.86
Riverine - High Flow Channel	0.32	0.09	0.01
Riverine - Lowered Floodplain	0.31	0.18	--
Upland	0.27	0.57	--
Wood Feature	0.44	0.05	0.55
Total Project Impacts	**3.41**	**1.36**	**1.42**
Temporary Impacts	**Montane Riparian**	**Valley Foothill Riparian**	**Riverine**
Access Route	0.33	0.19	0.01
Contractor Use Area	2.91	2.45	0.13
Temporary Channel Crossing	0.24	0.05	0.99
Total Temporary Impacts	**3.48**	**2.69**	**1.13**
Total Impacts on Riparian Habitat	**6.89**	**4.05**	**2.55**

Figure 3-3. Impacts on Riparian Habitat



Impacts on Potential Waters of the United States

	Impacts in Acres			
Project Impacts	**Seasonal Wetland**	**Riparian Wetland**	**Intermittent Stream**	**Perennial Stream**
In-Channel	--	1.54	--	1.02
Riverine - High Flow Channel	--	0.03	--	--
Riverine - Lowered Floodplain	--	0.004	--	--
Upland	--	--	--	--
Wood Feature	--	0.35	--	0.69
Total Project Impacts	**0**	**1.92**	**0**	**1.71**
Temporary Impacts	**Seasonal Wetland**	**Riparian Wetland**	**Intermittent Stream**	**Perennial Stream**
Access Route	0.01	0.02	0.001	0.01
Contractor Use Area	--	1.86	--	0.18
Temporary Channel Crossing	--	0.19	--	1.09
Total Temporary Impacts	**0.01**	**2.07**	--	**1.28**
Total Impacts on Riparian Habitat	**0.01**	**3.99**	**0.001**	**2.99**

Figure 3-4. Impacts on Potential Waters of the United States Habitat

At some activity areas (e.g., R-1, R-11), populations of invasive plants will be removed to expand floodplain habitat for salmonids and other aquatic organisms. This alternative is intended to reduce the existing populations of noxious weeds and invasive plant species through grading, clearing, and revegetation activities as well as periodic flooding of newly constructed floodplains. During the rehabilitation activities, control measures for invasive organisms (e.g., Himalayan blackberry, including using weed-free erosion control materials and washing equipment, would be implemented per environmental commitment EC-VW-9 [4.3-2b and 13d] (see Table 2-2) to prevent the spread of noxious weeds in the project ESL. Areas contaminated with known occurrences of didymo would be avoided. If no uncontaminated areas are available for water drafting, water drafting equipment would be cleaned by approved methods before using to draft water from an uncontaminated location. Didymo-infested water shall not be discharged into "didymo free" areas or would be discharged to the source from which it was taken.

Construction activities associated with this alternative would result in temporary and project impacts (i.e., impacts associated with work in the proposed activity areas) to riparian habitat impacts (see Figure 3-3). Temporary impacts to riparian habitat would consist of approximately 6.89 acres of montane riparian habitat and 4.05 acres of valley foothill riparian habitat. Approximately 2.55 acres of riverine habitat would be temporarily impacted. Project impacts to riparian habitat would include approximately 3.41 acres of montane riparian habitat and 1.36 acres of valley foothill riparian habitat. Project impacts would occur to approximately 1.42 acres of riverine habitat.

Construction activities associated with this alternative would result in temporary and project impacts to waters under the jurisdiction of the Corps (jurisdictional waters), which include the Trinity River and the wetlands and streams in the project ESL (see Figure 3-4). Direct temporary impacts would occur on approximately 3.99 acres of riparian wetland habitat, 0.01 acres of seasonal wetland habitat, 2.99 acres of perennial stream habitat, and 0.001 acres of intermittent stream habitat, totaling approximately 6.99 acres of temporary impacts to potential wetlands and waters of the U.S. Project impacts to potential wetland and waters of the U.S. would include approximately 1.92 acres of riparian wetlands and 1.71 acres of perennial stream habitat.

The construction and use of temporary access and temporary activity areas (i.e., access roads, contractor use areas, and river crossings) would result in 6.2 acres of temporary impacts to vegetation, which include 0.6 acre of montane riparian habitat, 0.2 acre of valley foothill riparian habitat, and 1.0 acre of riverine habitat. Because of the nature of the project, the impacts to riparian habitat from construction associated with access and staging areas would be temporary, and the riparian habitat is expected to recover over time.

Revegetation would occur within all IC and U activity areas, as well as some A and C activity areas. As described in Section 2.1.10, both planting and natural recruitment of native species are planned for the revegetation of the riparian and upland areas under this alternative. These revegetation efforts would follow TRRP's 2016 Draft Riparian Mitigation and Monitoring Plan and would incorporate the requirements of the Forest Service, the BLM, and other cooperating, responsible, and trustee agencies and landowners.

Revegetation will result in the reestablishment of approximately 16.5 acres of habitat in five elevation zones, which include emergent wetlands consisting of ponds, channel margins and sedge wetlands (3.3 acres), riparian consisting of willows and cottonwoods and riparian infill (5.6 acres), transition (4.0 acres), and upland riparian (3.6 acres). Up to 28.0 acres of areas disturbed by project activities would also be seeded and mulched[23]. Based on Table 3-8, this alternative would meet the TRRP's objective of no net loss of riparian habitat in the long term.

[23] On federal lands, seed would be from native sources, and mulch would be a combination of weed free straw and chips/slash from vegetation clearing within the project ESL.

Environmental commitments have been developed to ensure that the project would not affect BLM or Forest Service sensitive species individuals or populations and that this alternative is not likely to result in a trend towards federal listing or loss of viability of the species. Temporary disturbance associated with this alternative could discourage wildlife use of the habitats in and near the project ESL. Most wildlife species, such as deer, beaver, and most birds, would be able to use nearby habitats to avoid the disturbance and return once the rehabilitation activities are complete and riparian and upland revegetation reestablishes over a 3- to 5-year period.

Impacts on Forest Service and BLM sensitive plant species with habitat present in the project ESL would be avoided by implementing EC-VW-2, which requires two pre-construction surveys and flagging and exclusion fencing to be place around individuals/populations. If impacts cannot be fully avoided, salvage and relocation of individuals to a nearby suitable habitat location would occur.

Vegetation removal would occur outside the nesting season for birds (after August 1) and the breeding season for ring-tailed cat and before bats establish maternity colonies (i.e., in early February). If this is not practicable, pre-construction surveys would be conducted to identify active bird nest sites, bat roost sites, or ring-tailed cat dens in or adjacent to the project ESL. No-disturbance buffers would be established around the active sites or dens until they are no longer occupied, per environmental commitments EC-VW-6 [4.7-7 a-d], EC-VW-7 [4.7-8a-d], and EC- VW-8 [4.7-9a-c] (see Table 2-2). With these environmental commitments, no take of ESA-listed bird species or ring-tailed cat would occur, direct impacts on other special-status avian and wildlife species would be minimized or completely avoided, and there would be no indirect effects.

Both foothill yellow-legged frog and western pond turtle are known to use the Trinity River and adjacent habitats. The frog may use pools and slow-moving areas of the river with an adequate substrate for egg-laying, and disturbance to these areas during in-water activities could dislodge egg masses or injure frogs. Turtles may nest in upland areas adjacent to the river or be found in the water, and disturbance in these areas could damage nests or injure turtles. Pre-construction surveys for breeding and nesting activity of these species would be conducted in accordance with EC-VW-4 [4.7-5a-d] and EC-VW-5 [4.7-6a-e], and foothill yellow-legged frog egg masses or western pond turtle nests that could be disturbed by the rehabilitation activities would be relocated to nearby suitable habitat outside the activity areas.

Precautionary measures would also be taken during the rehabilitation activities in the event a frog or turtle is encountered in an activity area, and the individual(s) would be relocated outside the activity areas per EC-VW-4 and EC-VW-5. With these environmental commitments, no take of foothill yellow-legged frog would occur consistent with the California ESA, direct impacts on western pond turtle would be minimized or completely avoided and there would be no indirect effects.[24]

Freshwater mussel populations are known to occur along the Trinity River corridor and are likely present within the project ESL. Disturbance to mussel beds observed within the boundaries of in-channel activity areas would be minimized (see EC-VW-10 in Appendix E). Some mussels may inadvertently be physically displaced during construction. This affect would be minimal due to the large populations known to occur at other locations that would be protected within the project ESL as well as upstream and downstream.

Terrestrial snails are likely to occur along the Trinity River within the project ESL. Disturbance to terrestrial observed within the boundaries of in-channel activity areas would be minimized (see EC-VW-10 in Appendix E). Some nails may inadvertently be physically displaced during construction. This affect would be minimal due to the large populations known to occur at other locations that would be protected within the project ESL as well as upstream and downstream.

[24] The activities are expected to improve habitat for common and special-status reptiles and amphibians by increasing functional alluvial habitat and converting dredge tailings to more productive upland habitat.

Once the rehabilitation activities are complete, the habitats in the project ESL would include more riparian and wetland habitat with side channels off the mainstem Trinity River, providing additional riverine habitat and benefitting aquatic and riparian dependent species. Revegetation of disturbed activity areas would return them to their current or better conditions and would ensure reestablishment of native plants while reducing the extent of non-native and invasive plants. If invasive plants recolonize the restored areas, Reclamation would implement targeted control methods to remove the plants and reestablish native plants in accordance with EC-VW-9 [4.7-13a-g]. Long-term monitoring of the rehabilitation sites and adaptive measures to further enhance or create additional riparian or wetland habitat in accordance with EC-FR-4 [4.7-1b] would ensure no net loss of riparian or wetland habitat occurs, consistent with TRRP's 2016 Riparian Revegetation and Monitoring Plan. The rehabilitation activities would benefit wildlife, particularly wetland and riparian species, by enhancing the Trinity River corridor for nesting, breeding, roosting, foraging, and other activities. The corridor would continue to function as a movement corridor for many wildlife species, and the enhanced floodplain and riparian conditions could attract more wildlife to the project ESL.

With the inclusion of CEQA mitigation measures EC-VW-9 [4.3-2b], EC-VW-1[4.7-1a], EC-VW-6 [4.7-7 a-d], EC-VW-7 [4.7-8a-d], EC-VW-8 [4.7-9a-c], EC-VW-4 [4.7-5a-d], EC-VW-5 [4.7-6a-e], EC-VW-9 [4.7-13a-g], and EC-FR-4 [4.7-1b] described in this section, impacts under CEQA related to vegetation, wildlife, and wetlands considered under this resource topic would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under Alternative 2, no temporary or permanent disturbance to the habitats, plants, wildlife, or wetlands (and other waters) would occur in the project ESL. Habitat conditions in the project ESL would remain similar to current conditions, and the riparian corridor would be subjected to current Trinity River influences without the enhancements to the riparian and wetland habitats. The invasive yellow star thistle and other invasive plants would continue to dominate annual grasslands in the project ESL. Special-status wildlife species would continue to use habitats in the project ESL that are suitable for them.

Under Alternative 2, vegetation, wildlife, and wetland resources would continue to persist similar to existing conditions. Therefore, there would be no impacts on these resources as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.14 WILD AND SCENIC RIVERS

3.14.1 Affected Environment

The Trinity River was designated by the Secretary of the Interior as a National Wild and Scenic River (WSR) in 1981 under the 1968 Federal Wild and Scenic Rivers Act (WSRA). In addition to the mainstem Trinity River from the confluence with the Klamath River to 100 yards below Lewiston Dam, three other sections of the river were designated: the North Fork from the Trinity River confluence to the southern boundary of the Trinity Alps Wilderness Area, the South Fork from the Trinity River confluence to the SR 36 bridge crossing, and the New River from the Trinity River confluence to the Trinity Alps Wilderness Area. The mainstem Trinity River from 100 yards below Lewiston Dam downstream to Cedar Flat is classified as a "Recreational" wild and scenic river. In 1998, the BLM delineated the wild and scenic river corridor.

The sections of the Trinity River described above were designated as Wild and Scenic to preserve the river's free-flowing condition, water quality, and Outstandingly Remarkable Values (ORVs). The ORV that was identified on the date of designation was the anadromous and resident fisheries. Under an interagency agreement between the National Park Service, the BLM, and the Forest Service, the BLM and the Forest Service share the responsibility

for conducting WSRA Section 7 determinations for the mainstem Trinity River from Lewiston Dam to the confluence with the North Fork Trinity River. Appendix J provides additional information on this topic.

The section of the Trinity River in the project ESL was designated as Scenic in 1981, under the federal and state Wild and Scenic Rivers Acts (WSRA; Public Law 90-542 1968). This designation serves to preserve the river's free-flowing condition, water quality (e.g., extremely low turbidity levels under low-flow conditions), and ORVs. The section of the Trinity River subject to this alternative was found to have ORVs due to its anadromous fishery (Federal Register Vol. 46, No. 14, January 23, 1981). Appendix J provides a comprehensive analysis and determination of this alternative consistent with the requirements of the Section 7 of the WSRA.

3.14.2 Environmental Consequences

Alternative 1

Construction and implementation of Alternative 1 would have a temporary effect on the scenic and recreational components of the Trinity River's Wild and Scenic River values. However, the rehabilitation activities would ultimately enhance the overall form and function of the Trinity River, thereby enhancing the outstandingly remarkable values for which it was designated a federal Wild and Scenic River.

Implementation of this alternative would increase the potential for increases in turbidity levels during and, to a lesser degree, after construction. Flows that typically contribute to good fishing tend to be clear; increases in turbidity may, therefore, affect the recreational experience of anglers and the aesthetic values held by other recreationists. Increased turbidity and suspended solid levels would adversely affect water quality (refer to discussion in section 4.8, Recreation, of the Trinity River Master EIR) and could adversely affect aesthetic resources. As described in Table 2-4, four specific environmental commitments developed to reduce water quality impacts have been integrated into this alternative to reduce impacts of increased turbidity levels that could be visible to recreational users. Temporary effects to boaters and recreationists from reduced flows and water velocity during construction are addressed under the Recreation section. Impacts from temporary roads used to access the site and for continued vegetation maintenance after construction would remain inconspicuous to river users by design.

Under Section 7 of the federal WSRA, direct and adverse effects on the values for which the Trinity River was recognized as a Wild and Scenic River are prohibited. Based on the analysis and determination presented in Appendix J, this alternative would enhance the fishery ORV as well as maintain the water quality and enhance the free-flowing conditions for which the Trinity River was designated. Therefore, this alternative would be consistent with the provisions of the federal WSRA.

With the inclusion of CEQA mitigation measures EC-WQ-1 [4.5-1a-1e], EC-WQ-2 [4.5-2a – 2c], EC-WQ-3 [4.5-3a-3c], EC-WQ-4 [4.5-1e] and EC-RE-1 [4.8-1a], the impacts under CEQA considered under this resource topic would be less than significant (CCR, Title 14, Division 6, Chapter 3, Section 15382).

Alternative 2

Under Alternative 2, there would be no degradation or obstruction of a scenic view as a result of construction because the project would not be implemented, nor would there be an effect on the scenic quality of the Wild and Scenic River. Therefore, there would be no impacts as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382.

3.15 CEQA SIGNIFICANCE

As described in section 3.1, this document is an integrated NEPA/CEQA document. Table 3-7 provides a summary of the CEQA mitigation developed for each resource topic discussed in this chapter (see Appendix F for

details). It also identifies the level of significance as defined in the CCR, Title 14, Division 6, Chapter 3, Section 15382).

Table 3-7. Summary of Resource Topics Considered in This EA/IS

Resource Topic	CEQA Mitigation	CEQA Significance
Aesthetics	EC-WQ-1 [4.5-1a-1e], EC-WQ-2 [4.5-2a – 2c], EC-WQ-3 [4.5-3a-3c], EC-WQ-4 [4.5-1e], and EC-RE-1 [4.8-1a].	Less than Significant
Air Quality	EC AQ-1 [4.11-a-1a], [4.11-2a]	Less than Significant
Cultural Resources	EC-CU-1 [4.10-2a], and EC-CU-2 [4.10-2a]	Less than Significant
Fishery Resources	EC FR-1 [4.6-1a,1b], EC FR-2 [4.6-4a-4e], EC FR-3 [4.6-4f], EC FR-4 [4.6-5b], and EC FR-5 [4.6a-6d]	Less than Significant
Geomorphology and Soils	EC-GS-1[4.3-2a] and EC-GS-2 [4.3-2b]	Less than Significant
Hydrology and Flooding	Not Applicable	Less than Significant
Land Use	Not Applicable	Less than Significant
Noise	EC-NO-1 [4.14-1a], and EC NO-2 [4.14-1b]	Less than Significant
Recreation and Wild and Scenic Rivers	EC-WQ-1 [4.5-1a-1e], EC-WQ-2 [4.5-2a – 2c], EC-WQ-3 [4.5-3a-3c], EC-WQ-4 [4.5-1e], and EC-RE-1 [4.8-1a]	Less than Significant
Transportation and Traffic	EC-TC-2 [4.16-2a, 4.16-5a] and EC-TC-3 [4.16-4a]	Less than Significant
Vegetation, Wildlife, and Wetlands	EC-VW-9 [4.3-2b], EC-VW-1[4.7-1a], EC-VW-6 [4.7-7 a-d], EC-VW-7 [4.7-8a-d], EC-VW-8 [4.7-9a-c], EC-VW-4 [4.7-5a-d], EC-VW-5 [4.7-6a-e], EC-VW-9 [4.7-13a-g], and EC-FR-4 [4.7-1b]	Less than Significant
Water Quality	EC WQ-1 [4.5-1a, b], EC WQ-2 [4.5-1c], EC WQ-3 [4.5-1d], EC WQ-4 [4.5-1e,4.5-2a-2c], and EC WQ-5 [4.5-3a-3c]	Less than Significant

4 CUMULATIVE IMPACTS AND OTHER CEQA AND NEPA CONSIDERATIONS

The analysis in this chapter tiers from the "statutory considerations" discussion in Chapter 5 of the Master EIR; the EA incorporates that discussion by reference. That discussion addressed specific topics required under CEQA, such as cumulative impacts, the significant environmental effects of the proposed action (Alternative 1), the significant effects that cannot be avoided if the proposed action is implemented, and the growth-inducing effects of the proposed action. Under NEPA, additional discussions are also required, namely, the significant irreversible and irretrievable commitments of resources and the relationship between local short-term uses of the environment and the maintenance of long-term productivity. These discussions are incorporated by reference from the Master EIR and are summarized below; see the Master EIR for complete discussions of these topics. This section also provides updated information concerning the cumulative impacts of additional projects that were not identified as foreseeable in the Master EIR.

4.1 CUMULATIVE IMPACTS

The regulatory framework for the assessment of cumulative impacts under CEQA is discussed in Chapter 5, section 5.2.1, of the Master EIR, and the regulatory framework for NEPA is discussed in Chapter 8, Section 8.2.1 of the Master EIR. Under the CEQA Guidelines (Section 15355), the term "cumulative impacts" refers to two or more individual impacts that, when considered together, are considerable or that otherwise compound or increase other environmental effects. Cumulative environmental impacts arise from the incremental impacts of the proposed action when added to other closely related past, present, and reasonably foreseeable future projects.

The CEQ's implementing regulations for NEPA (40 CFR 1508.7) state that cumulative impacts result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) undertakes the other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time.

4.1.1 Methodology and Analysis

The methodology for the cumulative impact analysis is described in section 5.2.2 of the Master EIR. This assessment of cumulative impacts is considered in the same cumulative context; however, the list of related projects and programs considered in this analysis has been updated to include those closely related past, present, and reasonably foreseeable future projects listed below.

The cumulative impacts section provided in Chapter 5 of the Master EIR identified related foreseeable projects through the list approach, based on input from the lead and cooperating agencies. The geographic scope of the area examined for cumulative effects in that assessment was the Trinity River corridor between Lewiston Dam and the confluence of the North Fork Trinity River at Helena, California. The following projects were considered in that section and are still considered timely and relevant:

- Fish Habitat Management
- Trinity River Mainstem Fishery Restoration Project
- California Coastal Salmonid Restoration Program/Five-Counties Salmonid Conservation Program
- Clean Water Act Section 303(d) Total Maximum Daily Load Requirements Program

Since 2009, the TRRP has implemented projects at all the Phase 1 Channel Rehabilitation Sites and nine of the Phase 2 sites; the Deep Gulch and Sheridan sites were completed in 2017, and the Bucktail site completed in 2010 was expanded in 2016 to include additional area coincident to the portion of the site completed in 2010 as part of the Lewiston-Dark Gulch complex. Concurrently, the TRRP has continued to implement coarse-sediment (gravel)

augmentation at a number of locations downstream of Lewiston Dam, and fine sediment has been removed from both the Hamilton Ponds and Grass Valley Creek Reservoir. In addition, the TRRP-managed flows have been implemented yearly since the Master EIR was certified in 2009. Ongoing monitoring efforts by the TRRP and its partners continue to document improvements in habitat use and restoration of alluvial processes and riparian vegetation.

Since 2009, there have been a number of watershed restoration and road sediment reduction projects implemented by various agencies and organizations throughout the Trinity River basin. While some of these were considered in the Master EIR, the Forest Service and the Trinity County Resource Conservation District have completed a wide array of additional projects intended to improve watershed conditions, restore aquatic habitat, improve aquatic connectivity, and reduce road-related sediment delivery to streams and rivers. The Helena Fire in 2017 and the Carr fires in 2018 affected large portions of the Trinity River watershed and are expected to result in changes to upland and riparian vegetation and sediment flux throughout the watershed for the foreseeable future. These changes could have impacts on water quality and habitat for aquatic, riparian, and terrestrial species. While the EA/IS includes design measures and environmental commitments intended to reduce the direct and indirect effects associated with sediment flux, the timing of this project does not coincide with typical precipitation events for this area, so any turbidity produced during construction will not contribute to this sediment flux, and lowered floodplains will capture suspended sediment and reduce long-term sediment impacts from fires.

The TRRP has identified the need to develop a long-term source of coarse sediment (i.e., spawning gravel) for use in the lower reaches of the Trinity River (downstream of Douglas City). This need could result in harvesting and processing of dredge tailing deposits at various TRRP sites identified in the Master EIR. A project of this kind would have potential impacts on various resources. Still, it is speculative at this point in the planning cycle to be specific with respect to the location and/or type of impacts that may occur.

In 2017, the TRRP completed the Deep Gulch/Sheridan Creek project, and in 2019 it completed the Chapman Ranch Phase A project. Both of these projects are just downstream of the Chapman Ranch Phase B project ESL. The Chapman Ranch Phase A project is designed to work in concert with the proposed action. It would cumulatively have a beneficial impact on habitat for sensitive species and channel rehabilitation.

While there is a potential for cumulative impacts because of sediment delivery and transport from previous and concurrent TRRP river rehabilitation and sediment management projects, this would be a beneficial process that would contribute to the TRRP's overall objective of a functional alluvial river. It is assumed, however, that the aquatic impacts from those earlier projects have been mitigated, and the amount of time that has elapsed since they were completed has further dissipated the effects downstream. The previous issue-specific analysis in Chapter 5 of the Master EIR sufficiently addresses the cumulative impacts of the proposed action, and no substantial differences would arise in consideration of the proposed action separately.

4.2 GROWTH-INDUCING IMPACTS

Section 5.3 of the Master EIR evaluated the potential for growth that could be induced by the implementation of the proposed action and assessed the level of significance of any expected growth inducement. Under CEQA, growth itself is not assumed to be particularly beneficial, detrimental, or insignificant to the environment. If a project is determined to be growth inducing, an evaluation is made to determine whether significant impacts on the physical environment would result from that growth.

Implementation of channel rehabilitation activities in the project ESL would not remove any constraints to development, create new or improved infrastructure, or otherwise create conditions that would induce growth. The proposed action would improve habitat for anadromous fish and, thus, improve conditions for fishing and recreation; however, the improved fishery resources resulting from the implementation of the proposed action are

not likely to directly or indirectly result in substantial development or population growth. Therefore, implementation of the proposed action would not result in a significant growth-inducing impact.

4.3 ENVIRONMENTAL COMMITMENTS AND CEQA MITIGATION MEASURES

Reclamation's NEPA implementation guidance recommends that a list of environmental commitments for the preferred alternative be included in an EA. Chapter 2 of this EA/IS includes a list of environmental commitments and project design features that are part of the proposed action; these are fully described in Appendix E of this EA/IS. Where environmental commitments and project design figures are cited in this document, they are also cross-referenced with the relevant mitigation measure described in the mitigation, monitoring, and reporting plan (MMRP) in Appendix F. Because this document is a joint NEPA/CEQA document, mitigation measures have been identified for potentially significant CEQA impacts in compliance with CEQA requirements. Under CEQA, lead agencies are required to adopt a program for monitoring or reporting on the revisions that they required to be made part of the project and other measures required to mitigate or avoid significant environmental effects. The MMRP provides the comprehensive list of CEQA mitigation measures and identifies requirements for timing, responsible parties, and compliance verification.

4.4 SIGNIFICANT IMPACTS UNDER CEQA

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible (CEQA Guidelines Section 15021), and determinations of the significance of effects play a critical role in the CEQA process (CEQA Guidelines 15064). Section 5.4 of the Master EIR addresses several types of potentially significant effects.

Potentially significant effects have been identified in the areas of geology, geomorphology, soils, and minerals; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; wild and scenic rivers; cultural resources; air quality; visual resources; noise; public services and utilities; and traffic and transportation. These potential effects are discussed in the resource sections in Chapter 3, and Appendix A (Environmental Checklist) provides specific CEQA documentation. As part of the environmental impact assessment for each resource area, mitigation measures and/or design features have been identified that reduce these impacts to less-than-significant levels. The environmental analysis conducted for the proposed action did not identify any effects that, after implementation of the mitigation/design features, remained significant and, therefore, unavoidable; in addition, no significant irreversible effects associated with the proposed action were identified.

4.5 CONNECTED ACTIONS

The CEQ regulations for implementing NEPA (40 CFR 1508.25) state that some actions (other than unconnected single actions) may be interdependent parts of a larger action and depend on the larger action for their justification. These connected actions are closely related and should be addressed when discussing the larger action.

Connected actions that would occur related to the implementation of the proposed action include activities that are required for construction of the proposed action, such as TRRP realty actions; transportation of logs, salvaged large woody debris, boulders, and alluvial materials from locations outside the project boundary; and related vehicle trips, increases in traffic circulation, and wear and tear on local roadways. These activities were analyzed in the Master EIR, and supplemental analysis of these actions is provided in Chapter 3 of this EA/IS. The environmental analysis did not identify any effects that, after incorporation of environmental commitments, project design features, and CEQA mitigation measures, remain significant.

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Appendix A – Environmental Checklist Form

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APPENDIX A

Trinity River Channel Rehabilitation Site: Dutch Creek (River Mile 85.1–86.6) Environmental Checklist Form

1. Project Title:	Trinity River Channel Rehabilitation Sites Chapman Ranch Phase B (RM 83.5-83.8)
2. Lead Agency Name and Address:	North Coast Regional Water Quality Control Board 550 Skylane Blvd., Suite A, Santa Rosa, California 95403
3. Contact Person and Phone Number:	Gil Falcone, (707) 576-2830
4. Project Location:	Trinity County, California
5. Project Sponsor's Name:	Bureau of Reclamation Trinity River Restoration Program
6. General Plan Designation:	Trinity County General Plan – Resource (RE), and BLM 1993 Redding Resource Management Plan — Other (Matrix)
7. Zoning:	Agricultural 10-Acre Minimum (A10) and Agricultural Forest 20-Acre (AF20) Minimum
8. Description of Project:	See Chapter 2 of the Environmental Assessment/Initial Study (EA/IS) for the Trinity River Channel Rehabilitation Site: Dutch Creek (RM 85.1-86.6), in conjunction with Appendix B of the Environmental Assessment/Initial Study (EA/IS).
9. Surrounding Land Uses and Setting:	See Section 3.2.1 of the EA/IS

10. Other Public Agencies Whose Approval May Be Required (e.g., permits, financing approval, or participation agreement.)

- Bureau of Land Management, Redding Field Office (Right of Way and Free Use Permit)
- U.S. Forest Service (Access agreement)
- Trinity County Planning Department(Federal Emergency Management Agency compliance)
- U.S. Army Corp of Engineers (Clean Water Act, Section 404 compliance)
- North Coast Regional Water Quality Control Board (Clean Water Act, Section 401 compliance)
- State Water Resources Control Board (Compliance with the Construction General Permit)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

DETERMINATION: (TO BE COMPLETED BY THE LEAD AGENCY)

Based on this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☒ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Under California Code of Regulations, title 14, section 15177, after a Master EIR[1] has been prepared and certified, subsequent projects which the lead agency determines as being within the scope of the Master EIR will be subject to only limited environmental review. Mitigation measures from the Master EIR will be implemented.

Signature Date

Printed Name For the Lead Agency

[1] North Coast Regional Water Quality Control Board and U.S. Bureau of Reclamation. 2009. Channel rehabilitation and sediment management for remaining Phase 1 and Phase 2 sites. Master Environmental Impact Report, Environmental Assessment/ Environmental Impact Report. Trinity River Restoration Program. August 2009. SCH#2008032110

EVALUATION OF ENVIRONMENTAL IMPACTS

Each of these environmental factors listed above was fully evaluated and one of the following four determinations was made:

- **No Impact:** No impact to the environment would occur as a result of implementing the proposed project.
- **Less Than Significant Impact:** Implementation of the proposed project would not result in a substantial and adverse change to the environment and no mitigation is required.
- **Potentially Significant Impact:** Implementation of the proposed project could result in an impact that has a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (California Environmental Quality Act Guidelines Section 15382).
- **Less Than Significant Impact with Mitigation Incorporated:** A "potentially significant impact", as described above, that can be reduced to a less-than-significant level with the incorporation of project-specific mitigation measures.

ENVIRONMENTAL IMPACT CHECKLIST

I. AESTHETICS — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.4.2 of the EA/IS

(b) Refer to Section 3.4.2 of the EA/IS

(c) Refer to Section 3.4.2 of the EA/IS

(d) Not Applicable

Mitigation Measures

See California Environmental Quality Act (CEQA) mitigation measures described in Appendix D of the EA/IS: [4.5-1a-1e], [4.5-2a – 2c], [4.5-3a-3c], 4.5-1e] and [4.8-1a]

II. AGRICULTURAL AND FOREST RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104 (g))?	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e)	Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion of Impacts

(a) Not applicable

(b) Not applicable

(c) Not applicable

(d) Not Applicable

(e) Not Applicable

Mitigation Measures

Not Applicable

III. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b)	Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☒	☐
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.7.2 of EA/IS

(b) Refer to Section 3.7.2 of EA/IS

(c) Refer to Section 3.7.2 of EA/IS

(d) Refer to Section 3.7.2 of EA/IS

(e) Not applicable

Mitigation Measures

See CEQA mitigation measures described in Appendix F of the EA/IS: [4.11-a-1a], [4.11-2a].

IV. BIOLOGICAL RESOURCES — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to sections 3.12.2 and 3.13.2 of the EA/IS

(b) Refer to sections 3.12.2 and 3.13.2 of the EA/IS

(c) Refer to sections 3.12.2 and 3.13.2 of the EA/IS

(d Refer to sections 3.12.2 and 3.13.2 of the EA/IS

(e) Not applicable

(f) Not applicable

Mitigation Measures

See CEQA mitigation measures for fisheries described in Appendix F of the EA/IS: [4.6-1a, 1b], [4.6-4a-4e], [4.6-4f], [4.6-5b], and Environmental Commitment (EC)-FR-5 [4.6a-6d].

See CEQA mitigation measures for vegetation, wildlife and wetlands described in Appendix F of the EA/IS: [4.3-2b], [4.7-1a], [4.7-7 a-d], [4.7-8a-d], [4.7-9a-c], [4.7-5a-d], [4.7-6a-e], [4.7-13a-g], and [4.7-1b].

V. CULTURAL RESOURCES — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?	☐	☒	☐	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
e)	Cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code Section 21074?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.5.2 of the EA/IS

(b) Refer to Section 3.5.2 of the EA/IS

(c) Not applicable

(d) Refer to Section 3.5.2 of the EA/IS

(e) Refer to Section 3.5.2 of the EA/IS

Mitigation Measures

See CEQA mitigation measures for cultural resources in Appendix F of the EA/IS: [4.10-2a] and [4.10-2a].

VI. GEOLOGY AND SOILS -- Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion of Impacts

(a-i) Not applicable

(a-ii) Not applicable

(a-iii) Not applicable

(a-iv) Not applicable

(b) Refer to Section 3.9.2 of the EA/IS

(c) Refer to Section 3.9.2 of the EA/IS

(d) Not applicable

(e) Not applicable

Mitigation Measures

See CEQA mitigation measures for geomorphology and soil resources in Appendix F of the EA/IS: [4.3-2a] and [4.3-2b].

VII. GREENHOUSE GAS EMISSIONS — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion of Impacts

(a) Refer to Section 3.7.2 of the EA/IS

(b) Refer to Section 3.7.2 of the EA/IS

Mitigation Measures

See CEQA mitigation measures for air quality in Appendix D of the EA/IS: [4.11-a-1a] and [4.11-2a].

VIII. HAZARDS AND HAZARDOUS MATERIALS — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion of Impacts

(a-h) Hazards to the public were addressed in the 2009 Master EIR, and no issues were identified. Indirect public health or safety concerns are addressed under air quality, noise, recreation, and transportation and traffic.

Mitigation Measures

Not applicable

IX. HYDROLOGY AND WATER QUALITY — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion of siltation on- or off-site?	☐	☐	☒	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f)	Otherwise substantially degrade water quality?	☐	☐	☒	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j)	Inundation of seiche, tsunami, or mudflow?	☐	☐	☐	☒-

Discussion of Impacts

(a) Refer to Section 3.11.2 of EA/IS

(b) Not Applicable

(c) Not Applicable

(d) Refer to Section 3.11.2 of EA/IS

(e) Refer to Section 3.11.2 of EA/IS

(f) Refer to Section 3.11.2 of EA/IS

(g) Refer to Section 3.10.2 of EA/IS

(h) Refer to Section 3.10.2 of EA/IS

(i) Not Applicable

(j) Not applicable

Mitigation Measures

See CEQA mitigation measures for water quality in Appendix F of the EA/IS: [4.5-1a, b], [4.5-1c], [4.5-1d], [4.5-1e, 4.5-2a-2c], [4.5-3a-3c] [4.11-a-1a] and [4.11-2a].

No mitigation required for Hydrology and Flooding.

X. LAND USE AND PLANNING — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c)	Conflict with any applicable habitat conservation plan or natural communities conservation plan?	☐	☐	☐	☒

Discussion of Impacts

(a-c) Refer to Section 3.2.2 of the EA/IS

Mitigation Measures

Not applicable

XI. MINERAL RESOURCES — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b)	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion of Impacts

(a, b) Refer to Section 3.9 of the EA/IS

Mitigation Measures

Not Applicable

XII. NOISE -- Would the project result in:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.8.2 of the EA/IS

(b) Refer to Section 3.8.2 of the EA/IS

(c) Not applicable

(d) Refer to Section 3.8.2 of the EA/IS

(e) Not applicable

(f) Not applicable

Mitigation Measures

See CEQA mitigation measures for noise in Appendix F of the EA/IS: [4.14-1a] and [4.14-1b].

XIII. POPULATION AND HOUSING — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c)	Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion of Impacts

(a-c) Not applicable.

Mitigation Measures

Not applicable

XIV. PUBLIC SERVICES — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
	Fire protection?	☐	☐	☐	☒
	Police protection?	☐	☐	☐	☒
	Schools?	☐	☐	☐	☒
	Parks?	☐	☐	☐	☒
	Other public facilities?	☐	☐	☐	☒

Discussion of Impact

(a) Not applicable

Mitigation Measures

Not applicable

XV. RECREATION — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b)	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
c)	Degrade the quality of recreation activities or impede the use of recreation areas?	☐	☐	☒	☐

Discussion of Impacts

(a, b) Not applicable

(c) Refer to Section 3.3.2 of the EA/IS

Mitigation Measures

The CEQA mitigation measures that address impacts to water quality on recreational use of the Trinity River include: [4.5-1a-1e], [4.5-2a – 2c], [4.5-3a-3c], and [4.5-1e].

See CEQA mitigation measures for noise in Appendix F of the EA/IS: [4.14-1a] and [4.14-1b].

XVI. TRANSPORTATION AND TRAFFIC — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b)	Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
d)	Conflict with an applicable congestion management program, including, but not limited to level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
e)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
f)	Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
g)	Result in inadequate emergency access?	☐	☐	☐	☒

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
h)	Conflict with adopted polices, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

Discussion of Impacts

(a) Refer to Section 3.6.2 of the EA/IS

(b-h) Not applicable

Mitigation Measures

See CEQA mitigation measures for traffic and transportation in Appendix F of the EA/IS: [4.16-2a] and [4.16-5a].

XVII. UTILITIES AND SERVICE SYSTEMS — Would the project:

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion of Impacts

(a-c) Not applicable

(d) Refer to Section 2.1.12 and Appendix D (Project Design Elements) of the EA/IS

(e) Not applicable

(f) Refer to Section 2.1.12 and Appendix D (Project Design Elements) of the EA/IS

(g) Refer to Appendix D (Project Design Elements) of the EA/IS

Mitigation Measures

Not applicable

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE (To be filled out by Lead Agency if required)

		Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

(a) Refer to Sections 3.12.2, 3.13.2 and 3.5.2 of the EA/IS

(b) Refer to Chapter 4 of the EA/IS

(c) Refer to Chapters 3 and 4 of the EA/IS

Appendix B – Scoping Summary

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APPENDIX B

Trinity River Channel Rehabilitation Site: Chapman Phase B (River Mile 83.5–83.8) Scoping Notice

Chapman Ranch Phase B
Channel Rehabilitation Project
Proposed 2021 In-River Construction

Project Background

The U.S. Department of Interior established the Trinity River Restoration Program (TRRP/Program) in 2000 with the intent to restore the fisheries of the Trinity River (River) from the impacts of dam construction and related water diversions of the Trinity River Division of the Central Valley Project[1]. Baseline ecological conditions of the Trinity River at the time of the establishment of the TRRP also reflected effects from legacy mining and timber harvest in the watershed. These effects are considered in the Program's restoration activities.

Chapman Ranch Phase A and B project areas before Phase A project construction

The TRRP is administered by the US Bureau of Reclamation (Reclamation) and establishes a partnership between federal and state resource agencies, tribes, and Trinity County toward the fisheries restoration goal. The Program's primary objective is to restore the processes and attributes of an ecologically-functioning river system while retaining the Trinity and Lewiston Dam water supplies—vital to the Central Valley.

There are five primary components to the TRRP's river restoration work:

1. ***Variable annual instream flows***: releasing water from Lewiston Dam (based on forecasted Water Year availability) to mimic natural Trinity River conditions and to maintain/interact with downstream areas to enhance conditions for all life stages of fish and wildlife.

2. ***Channel rehabilitation***: restoring the River's functional floodplain, which has been channelized and simplified by managed river flows and mining.

3. ***Sediment management***: re-introducing gravel (aka coarse sediment for spawning and habitat diversity) that is blocked by the dam and moves downstream during high flow events and reduces fine sediment that degrades fish habitats.

4. ***Watershed restoration***: addressing negative impacts that have resulted from poor land management in the basin. Activities include efforts in Trinity River tributaries to decrease fine sediment inputs and increase aquatic habitats.

[1] https://www.usbr.gov/mp/cvp/

5. ***Adaptive management***: monitoring, evaluating, and improving the effectiveness of River restoration actions.

Anadromous spawning habitat after TRRP project construction

As part of continuing River restoration efforts in channel rehabilitation, the TRRP proposes to construct the second phase of its Chapman Ranch Phase A river restoration project near Junction City, CA, termed the Chapman Ranch Phase B Project (Phase B).

As part of Phase B, the TRRP will complete an Environmental Assessment/Initial Study (EA/IS) to meet requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). This effort will be led by Reclamation, the US Forest Service (USFS), Bureau of Land Management (BLM), and the California North Coast Regional Water Quality Control Board. The EA/IS will evaluate and disclose potential environmental effects of implementing Phase B. The purpose of this notice is to invite you to participate in the NEPA/CEQA process for Phase B, by providing comments, suggestions, or concerns you may have about this effort during a public scoping period. To encourage your informed participation, this scoping notice includes a general description of the project/proposed action and the purpose and need for the project. All NEPA/CEQA documents completed for the 2019 Phase A project can be found at http://www.trrp.net/restoration/channel-rehab/chapman/.

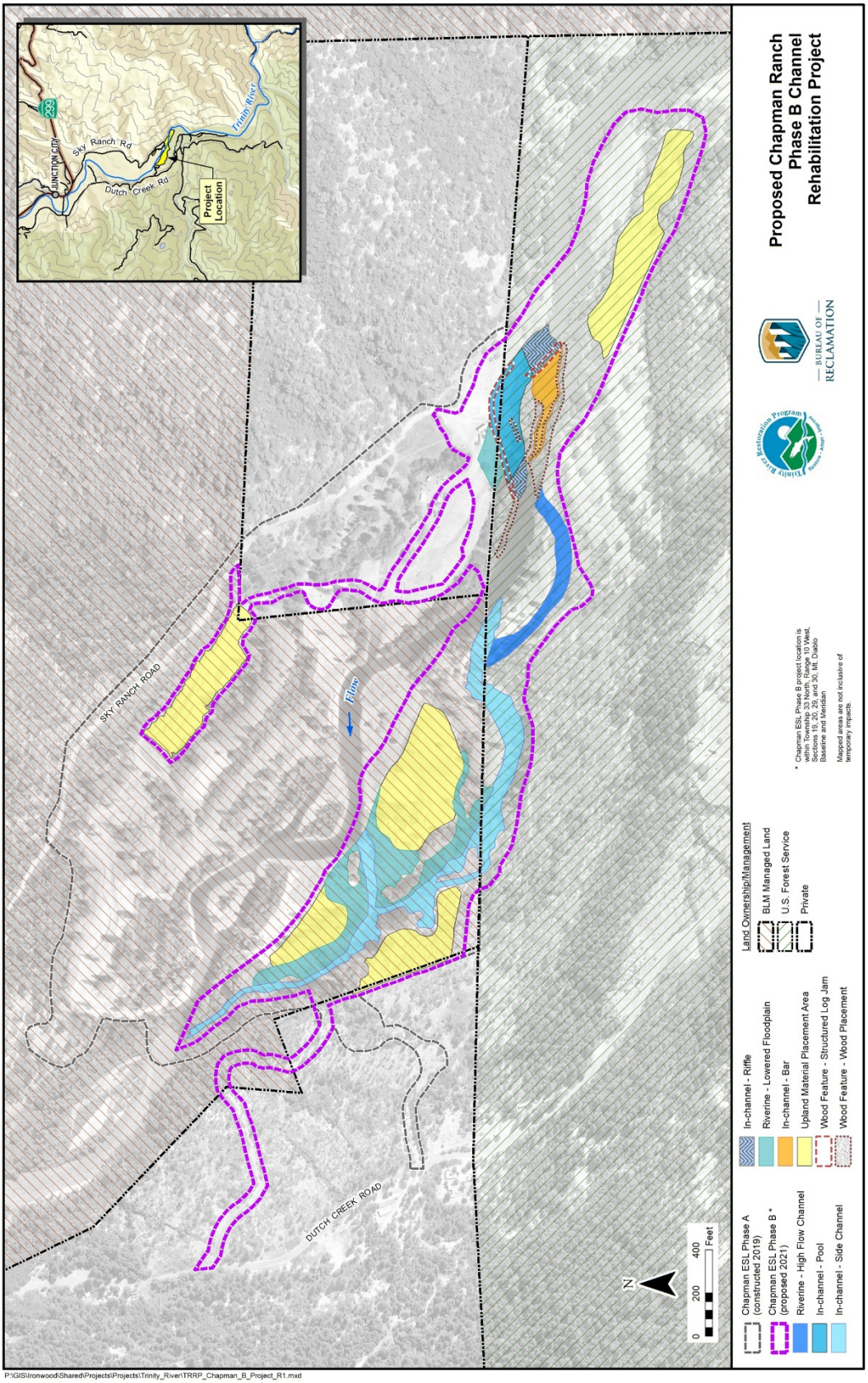
Phase B Project Goals and Objectives

The Phase B project is designed to interface with the 2019 Phase A project to increase the size and improve the overall function of the restoration area. The completed Chapman Ranch Project would:

- Reestablish a functional, topographically-complex floodplain to increase river connections at a greater range of flows and promote dynamic river processes.
- Increase in-channel habitat diversity at all flows by placing wood to interact with river flows, provide cover for fish, and increase channel complexity and groundwater retention.
- Revegetate construction-disturbed upland and riparian habitats to restore native plant diversity and fish and wildlife habitat, and provide future trees for recruitment to the River.

Chapman Ranch Phase B Channel Rehabilitation Project Description

The proposed Phase B project spans 63 acres south of Junction City, CA, between river miles (RM) 83.5 and 83.8 and adjacent to the Chapman Ranch Phase A project (RM 82.8 to 83.5). Phase B would be accessed via Sky Ranch Road on River right, and Dutch Creek Road (approximately 3 miles upstream of the Dutch Creek Road bridge) on River left. Most of the lands included in the proposed footprint are managed by the USFS (29 acres) or the BLM (27 acres). The remainder consists of several privately-owned parcels (7 acres) located at the upstream and downstream boundaries of the Project area. The figure below shows the Phase A and proposed Phase B project area footprints.



Chapman Ranch Phase B Project Location and Proposed Project Activities

Proposed Project Activities

To achieve the Phase B goals and objectives, TRRP proposes the following project activities which are similar to, and would work in concert with, those of Phase A:

- Wood placement and reduction of channel-stabilizing vegetation to encourage the River to meander and improve dynamic riverine processes;
- Lowering of floodplains and the creation of a high flow channel to support river maintenance of constructed features and promote broad-vegetated areas away from the River's banks;
- Excavation to create new side channels, in-channel pools, bars, and riffles—immediate habitat that would generally remain but evolve over years of seasonal flooding;
- Placement of large wood features, including log jams that would provide immediate cover and interact with River flows to scour and maintain function;
- Vegetation planting and amending of soils in riparian and upland vegetation zones to increase use by wildlife; and
- Re-vegetation of native riparian and wetland areas to improve aquatic habitat conditions.

Possible Local Disturbances

- Approximately 40,000 to 60,000 cubic yards of material would be excavated and moved throughout the Project using heavy construction equipment and haul trucks.
- Highway-legal haul trucks would make deliveries (of equipment, large wood, plants, etc.) during work hours, utilizing existing roads.
- Nearby residents may experience noise commensurate with the use of haul trucks and heavy construction equipment, such as dozers and excavators.
- No road closures or traffic delays are anticipated.
- Minimal tree and vegetation removal would occur. Trees downed for Project activities would be used to create the Project's large wood features, reducing the need for off-site timber.

Proposed Phase B Project Schedule

- Public Scoping – January 21 - February 21, 2020
- Draft EA/IS for public comment – Spring 2020
- Final EA/IS, Forest Service Objection Period, and Final Decision – Summer 2020
- Proposed Phase B Project construction – As early as Fall 2020 for up-slope work, Summer 2021 for in-river construction
- Post-construction revegetation and maintenance – As needed

How to Participate in the Phase B Scoping Process

The Trinity River at the proposed Phase B project area

If you can offer information relevant to the proposed Project such as resources present in the Project area, potential conflicts in the use of resources, potential effects to resources from the Project, points of contention with the Project or viable Project alternatives to meet the goal, you are encouraged to send your comments in writing to Reclamation at the address below. Full citation of any scientific literature or data offered is requested to assure, and expedite, its retrieval.

After the scoping comment period, the interdisciplinary team will review all the scoping comments, determine key issues, and, if necessary, develop additional alternatives to respond to those issues.

- Comments may be submitted by email to msimon@usbr.gov or mailed to:

  Chapman Phase B Scoping
  C/O TRRP
  P.O. Box 1300
  Weaverville, CA 96093

- Please include Chapman Ranch Phase B Channel Rehabilitation Project Scoping Comment in the subject line of your email or letter.
- For all submittals, please also include the following information:
  - Your name and address (telephone and email are also suggested)
  - Site-specific comments about the proposed action, along with supporting information that would help identify issues, develop alternatives, or predict environmental effects of the proposal
- Comments received, including the names and addresses of those who comment, will be considered part of the public record on this proposal and will be available for public inspection.
- This project supports the objectives of the Redding BLM's Resource Management Plan and the Shasta Trinity National Forest's Land and Resource Management Plan. This project is not a fuel reduction project as defined by the Healthy Forest Restoration Act of 2003. This document satisfies Forest Service Requirements for Scoping under 36 CFR 220.4(e).
- Comments received by **February 21, 2020** will be fully considered by the agencies' interdisciplinary team.

Appendix C – Comments on Public Draft EA – to be competed after comment period

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Appendix D – Project Details

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APPENDIX D

Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile 83.5–83.8) Project Details

DESIGN CONTEXT

The remote nature of this site, sensitive environmental conditions and the highly modified nature of aquatic, riparian and upland habitat within the Chapman Ranch Phase B project area presents a unique opportunity to aggressively reshape the channel geometry, increase floodplain connectivity, reintroduce large wood to this reach and increase the overall complexity and functionality of habitat for fish and wildlife species.

The comprehensive (Phase A and B) Chapman Ranch project design began in 2011 and incorporates input from an independent value engineering study and numerous consultations with the Program and other members of the Trinity River Restoration Program (TRRP) design team. The Hoopa Valley Tribe Design Group prepared a design report that incorporated the input from consultants and the TRRP design team into the current design of the rehabilitation site. The design report includes exiting conditions at the project site as well as an evaluation of future desired conditions. Copies of these design reports are available on the TRRP data portal at http://odp.trrp.net/. The design allows for immediate and dramatic improvements in salmonid habitat for all life stages by introducing large areas with suitable flow depth, velocity and cover. Riparian ecosystem health and floodplain connectivity is addressed throughout the project site. The sharply meandering planform geometry creates opportunities for future entrainment of spawning gravel, lateral channel migration, and reworking of dredge tailings to dramatically increase the hydraulic complexity of the reach both near-term and into the future.

DESIGN OBJECTIVES

The Chapman Ranch Phase B site was identified by the TRRP as having high potential for rapid and dramatic improvement in salmonid habitat. The purpose of this analysis and design effort is to develop recommendations to advance one of the primary Program objectives, which is to mechanically reshape and scale the current channel form to interact with the contemporary flow regime, reestablishing physical processes that would create and maintain fish habitat.

The design objectives are as follows:

Physical (Geomorphic/Flow)

- Target width/depth ratios for gravel bars of at least 25:1, but preferably 40:1.
- Promote dynamic river processes (scour/deposition, width changes, lateral migration, sinuosity, etc.).

- Preserve alluvial potential of reach. Avoid armoring elements, such as ballast material, using cobble/boulders greater than 6 inches and large wood pilings.
- Reduce confinement of channel width from historic tailing placement.
- Promote fine sediment deposition on floodplain and low bench surfaces.
- Create multi-threaded chutes, and side channels where geomorphic conditions are appropriate for a multi-channel morphology.
- Utilize mainstem, tributary, valley wall water sources, and perched groundwater to reduce excavation to develop functional floodplains capable of natural riparian recruitment, as well as benefit natural and constructed off-channel habitats.
- Create annual or seasonal surface water connection to existing water features.
- Reduce mainstem wood storage deficit (wood placement would be as structured log jams and habitat wood (aka habitat structures and floodplain pieces).
- Inundate floodplain benches with mainstem flows ranging between 1,500 cfs and 7,155 cfs.

Biological

- Increase and sustain fry rearing habitat area across a range of flows during the Jan 1 – April 30 time period.
- Increase lateral and longitudinal connectivity of fry/juvenile rearing habitat (Jan 1 – April 30) and pre-smolt / smolt habitat (April 1 – June 30).
- Increase area of vegetated surfaces experiencing continuous inundation duration of >= 14 days during normal and wetter years for fry/juvenile rearing (Jan 1 – April 30).
- Increase area of vegetated surfaces experiencing continuous inundation duration of >= 14 days during normal and wetter years for pre-smolt and smolt rearing (April 1 – May 31).
- Enhance amphibian habitat and breeding use by increasing potential for warming in shallow slow moving water in channel margin.

Riparian

- Preserve patchy existing multi-story riparian vegetation and cottonwoods.
- Increase surfaces providing >21 days of moist soils within 0.85 ft of the ground surface during seed dispersal (April 1–June 30) in normal and wetter years surfaces for natural riparian regeneration, especially near local cottonwood seed sources. Surfaces meeting the flow duration criteria would inundate at approximately 2,200 cfs.
- Revegetate constructed floodplains and benches with native woody riparian, conifers, and understory species.

DESIGN ELEMENTS

The proposed action consists of a number of activity areas. This section describes the discrete activity areas incorporated into the proposed action. The types of activities proposed for these areas are based on those described and analyzed in Section 2.3.2 of the Master EIR[1] (North Coast Regional Water Quality Control Board (NCRWQCB) and Reclamation 2009). These areas are intended to cover the full range of activities, the actual area that would be treated would typically be smaller. Figure 2-1 of the EA/IS shows the locations where design elements are proposed and where rehabilitation activities would take place.

[1] The 2009 Master EIR can be found at https://www.trrp.net/library/document/?id=476.

Activity areas are identified as:

- Riverine (R): areas at elevations above the bed and bank of the active river channel at low flow (450 cfs).
- In-channel (IC): wetted areas within the active low-flow river channel;
- Upland (U): land lying above the 100-year flood level where normal inundation occurs; and
- Contractor use (C): areas for temporary construction staging and access

While these activity areas cover the full range of work to be completed, the actual disturbance footprint would typically be smaller than that depicted in figures. In support of the construction process, temporary access routes and stream crossings would be used. Structured log jams and wood placement are also included as discrete activity areas, although they may coincide with other riverine and in-channel activity areas. In addition, multiple Contractor Use Areas, that connect activity areas, allow the Contractor flexibility to choose where/how they would complete work in the most efficient/least impactful manner based on real-time conditions (e.g. to avoid nesting birds or previously planted areas). While most of these areas would be used for Phase B construction staging or as maintenance access for Phase A, others would not. Activities in riverine and in-channel areas would typically occur during the in-channel construction window authorized by the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the NCRWQCB[2].

Riverine areas are labeled with an R preceding the site number (e.g., R-1, R-6); upland areas are labeled with a U (e.g., U-1, U-2); in-channel work areas are labeled with an IC (IC-1, IC-4); construction staging/contractor use areas are labeled with a C (C-1); access roads are labeled with an A; temporary crossing areas are labeled with an X; and structured log jams are labeled with an SLJ and wood placement areas are labelled with WP. These labels are used throughout this document.

Riverine Construction (R) – Floodplains, High and Low-flow Channels

Three types of inundated surfaces – floodplains, and high and low flow channels – would be constructed to be inundated and function at flows ranging from about 500 to more than 7,000 cubic feet per second (cfs). Activities associated with the construction of these surfaces would also enhance the type and degree of connection to the mainstem at various flows. These activities are intended to expand the surface area of the channel that could be inundated by reoccurring flows below the ordinary high-water mark (i.e., 6,000 cfs). Vegetation would be cleared as necessary, and earth would be excavated to meet design elevations for periodic inundation. Under the proposed action, construction of these features would occur at R1, R6, R-10, R-11, and R-12 (see Table D-1).

Newly inundated surfaces would provide important rearing and slow-water habitat for juvenile salmonids and other native anadromous fish and wildlife. They would also increase the likelihood of channel migration resulting in enhanced sinuosity, thereby providing the habitat variability that was historically present and required to support rapid growth of native fishes. Removal of alluvial material and placement of log jams would be used to create lowered and tiered floodplains, side channels, and ponds. Native riparian vegetation would be planted in newly-lowered floodplains where post-project conditions would

[2] The in-river work window has been expanded to cover a July 15 through Oct 15 period in order to protect all life stages of threatened fish while ensuring that the TRRP is efficient in completing their projects that have been initiated. In agreement with the NMFS, Best Management Practices (BMPs) that are protective of all native anadromous fish and their habitats are required after the Sept 15 date.

also encourage natural recruitment. Table D-1 outlines activities at each of the proposed riverine construction areas.

These treatment areas would rely on a combination of natural recruitment of native riparian vegetation and riparian planting to enhance the establishment of a diverse assemblage of native vegetation. If initial revegetation establishment is less successful than anticipated, additional efforts would be made by Reclamation consistent with requirements and commitments outlined in the TRRP's Draft 2016 Riparian Revegetation and Monitoring Plan. This plan requires supplemental efforts (e.g., in-planting, weed control, irrigation) as necessary to establish riparian vegetation to meet the standard of no net loss in riparian vegetation from pre-project levels.

Table D-1. Riverine Construction Activity Area Descriptions

Riverine Construction Area	Feature Type(s)	Description
R-1	High-flow side channel	Construct a high-flow side channel on the upper floodplain. Would Increase low-flow bank length to provide additional low-sediment-load flow to the R-11 side channel, thus contributing to the persistence of the R-11 side-channel complex. The side channel would activate when mainstem flows are greater than 1,000 cfs to provide lower streamflow velocities and shallower depths over a wider range of flows. The constructed side channel design would have varying side slopes ranging from 2:1 to 4:1, 0.2 percent bed slope, a minimum 50-ft top width, and a minimum 9-ft bottom width. Reduced depth to groundwater is designed to increase riparian planting success and winter refuge for juvenile salmonid rearing.
R-6	Tiered floodplain	Consists of a tiered floodplain with a low bench and a higher bench, both suitable for riparian planting. Promote inundation during contemporary flows, including winter and spring high-flow event deposition of fine sediment. The constructed floodplain would be inundated by flows from the Area R-11 side channel complex when mainstem flows exceed 3,000 cfs (low bench), 4,500 cfs (high bench), and 7,155 cfs (complete inundation). The Area R-6 riparian floodplain is expected to accumulate fine sediment and slowly increase in height as the riparian plantings become established. Fine sediment transported through the upper third of the side channel is expected to be deposited as it nears the Area R-6 floodplain, maintaining the integrity of the Area R-11 side channel.
R-10	Tiered floodplain	Consists of a tiered floodplain with a low bench and a higher bench, both suitable for riparian planting. Promote frequent inundation of riparian plantings and deposition of fine sediment adjacent to the R-11 left bank side channel complex. Objective is to Inundate the Area R-10 floodplain by flows from the Area R-11 side channel complex when mainstem flows exceed 3,000 cfs (low bench), 4,500 cfs (high bench), and 7,155 cfs (complete inundation). Is expected to accumulate fine sediment and slowly increase in height, as riparian plantings become established.
R-11	Low-flow channel	Consists of two side channel entrances to capture flow at summer baseflows (493 cfs). Runoff would be captured from the adjacent hillslopes during winter months and most rain events. The inlet elevation is expected to be high enough above the mainstem channel elevation that very little material larger than sand would enter the side channel. The downstream third of the channel is expected to have sufficient episodic flow and sediment transport capacity to maintain an opening to the mainstem.

Riverine Construction Area	Feature Type(s)	Description
R-12	Lowered Floodplain	Spans the right bank floodplain from RM 83.45 to RM 84.5 with a total area of 21,740 ft2 (0.5 acres). Includes an excavated floodplain and riparian planting bench. The geomorphic goals are to lower floodplain elevations to decrease flow confinement and to reduce stream power to encourage deposition of gravel-sized material suitable for spawning. Flows greater than the geomorphic bankfull discharge (7,155 cfs) will exceed channel capacity in the IC-3 riffle area and flow onto and over the R-12 floodplain and connect with constructed Phase A floodplain areas. The riparian planting bench is designed with an average elevation of 1,494 ft, and designed to be inundated at a flow of 7,155 cfs. The lowered floodplain design is expected to provide opportunities for establishment of native vegetation and improve channel–floodplain hydraulic connectivity. Reinforcement by SLJ-2 is sufficient to delay erosion of the upstream end of the floodplain and prevent recapture of the original (pre-Phase A implementation) mainstem. Significant near term (i.e., 5 years) channel avulsion is not anticipate due to the reinforcement by SLJ-2 and willow trenches.

In-Channel Construction (IC) – Meander Channel Complex (Bars, Riffles and Pools)

In-channel construction includes those activities that would occur in the river under base flow conditions (e.g., 450 cfs) during the in-channel construction window (July 15 to October 15). After September 15th, Best Management Practices (BMPs) would be in place to minimize impacts to adult coho and chinook salmon. The construction of various types and sizes of grade control structures, including construction or excavation of alluvial features (e.g., bars, riffles, and pools), would increase channel complexity through promotion of channel migration, increased sinuosity, reduced fine sediment storage, increased coarse sediment transport, and restoration of depositional features (e.g., riffles, bars and islands) available for spawning and rearing habitat. Riffles are the shallower, faster moving sections of a river. Gravel bars and islands provide habitat complexity as well as other ecological functions. Table D-2 outlines the in-channel activities that would occur under the proposed action.

The preferred alternative would include a meander channel complex that spans activity areas IC-1, IC-2, IC-3, and IC-4 and is intended to create a meander sequence with a bar-pool-riffle morphology that conforms to the current TRRP flow regime[3]. Construction of this complex would increase channel length, complexity, sinuosity, and reduce slope in this section of the channel.

The meander complex would provide a diversity of water depths and velocities across a wider range of flows than the existing mainstem channel configuration. Activity area IC-1, IC-2, and IC-3 -would form the meander channel with the pool connected to riffles at IC-1 and IC-3. SLJ-1 and medial bar IC-4 would force approximately 70 percent of flows up to 7,155 cfs into the newly-constructed channel.

During construction of in-channel activity areas, earthen berms would be left as necessary near the upstream and downstream ends of constructed features to ensure that water quality standards are met. These berms would be removed at the end of construction if the water within these contained areas is of appropriate quality for discharge to the river or they may be left in place for removal by subsequent high

[3] A description of the typical releases for river restoration can be found at https://www.trrp.net/restoration/flows/typical-releases/.

flows. Alternatively, water in the constructed features may be pumped to uplands or slowly metered into the mainstem river post-construction. These techniques would ultimately reduce the amount of turbid water that would reach the Trinity River and would ensure that water quality permit requirements are met (e.g., no more than 20 nephelometric turbidity units (NTUs) at 500 feet downstream of construction).

Table D-2. In-Channel Construction Activity Area Descriptions

Riverine Construction Area	Feature Type(s)	Description
IC-1	Riffle	Consists of a 160-ft-long riffle composed of spawning gravel that would slope toward the Area IC-2 meander complex to steer flows into the right bank. The constructed riffle is expected to establish and maintain the riffle–pool–riffle sequence throughout the entire Chapman Ranch rehabilitation site.
IC-2	Meander/Pool/Bar	Consists of a forced meander, point bar, and pool feature that would: increase low-water channel length, sinuosity, and complexity; decrease meander wavelength and radius of curvature, and; provide the physical template for future channel migration and entrainment of coarse alluvium from the channel bank. The design would capture and direct discharge into the new meander and direct its energy into the right bank to promote bed scour, channel complexity and dynamism.
IC-3	Riffle	Consists of a riffle composed of spawning gravel that would connect the IC-2 meander complex to the existing channel, to provide the physical template to maintain the riffle–pool–riffle sequence near the upstream end of the project.
IC-4	Medial Bar	Consists of a medial bar/island composed primarily of spawning gravel with a large cobble/small boulder skeletal component on the upstream end. The design would increase bed height and narrow the width of the existing main channel, direct flow into the Area IC-2 meander complex and prevent recapture of the existing mainstem. The channel infill area is expected to be successfully planted with willow trenches and other riparian planting that would help stabilize the constructed bar.

Upland (U)

Excavated materials (e.g., fill) that would not be used for instream construction would be placed in upland environments as fill on terraces formerly subjected to a variety of placer mining activities. Table D-3 outlines the activities that would take place at each upland activity area.

Upland activity areas have been located to ensure that there would be no increase in the elevation of the 100-year floodplain, consistent with requirements of Trinity County's Floodplain Ordinance. These activity areas would be used to place excess material excavated in the construction of riverine and in-channel activity areas. The boundaries of these fill areas were defined using a FEMA-approved modeling process; field verification by surveyors and engineers was performed to ensure these areas would be located at an elevation above the FEMA 100-year floodplain. Within these activity areas, the depth of fill would range from about one foot near the edge to as much as 35 feet, depending on the size and location of the activity area. Fill materials would be spread in uniform layers that would blend in with the natural terrain and provide stable slopes for revegetation.

Table D-3. Upland Construction Activity Area Descriptions

Riverine Construction Area	Feature Type(s)	Description
U-1	Upland Terrace	Primary spoils area but may be used for providing coarse material (greater than ⅝-in) for use in riffles, point bars, and structured log jams. Fine material excavated from the project would be spoiled here and planted with native vegetation.
U-2	Upland Spoils Area	Primarily a spoil area for material excavated from the channel but may also be used as a borrow area providing the 10,000 cubic yards of spawning gravel (⅝-in to 5-in diameter) for use in riffles, point bars, and structured log jams. The area would be planted with native vegetation after construction is complete.
U-3, U-4 and U-5	Upland Spoils Areas	Spoil sites for excavated material that would be planted with native vegetation after construction is complete.

Wood Features – Structured Log Jams (SLJ) and Wood Placement (WP)

Woody material is a natural part of healthy rivers. It provides important habitat for aquatic species by providing cover from high flows and predators. The low-velocity areas collect suitable spawning materials, and woody organic materials are a food source for aquatic insects. It can help create and maintain beneficial habitat features such as pools, islands, and gravel bars.

Impacts associated with the use of organic (e.g., large wood, slash) and inorganic (e.g., boulders) materials were analyzed in the Master EIR under Sediment Management activities along with other activities that would facilitate channel construction and maintenance (e.g., excavation and placement of alluvial material in in-channel and riverine areas). The TRRP would use appropriate materials to cause and enhance changes in channel geometry intended to improve aquatic and wildlife habitat as well as ecological function. The addition of large rock (>6 inches) as ballast for rock/wood structures (e.g., structured log jams (SLJs)) would ensure that these structures would remain in place and confine the river, thereby increasing the power of the river to scour and maintain adult salmonid holding habitat.

As appropriate, large wood and accompanying slash removed as part of vegetation clearing activities would be retained and used for construction of SLJ and WP structures during riverine and in-channel activities to provide additional hydraulic and habitat complexity and temporary erosion control measures; these activities would potentially occur in any of the IC or R features. This activity could include large wood placement of individual pieces, small accumulations, and large habitat structures. The creation of SLJ and WP structures would develop topographical and hydraulic complexity and increase bank length to provide additional salmonid rearing habitat over a wide range of flows. The use of these structures would also improve spawning, holding and rearing habitat for anadromous salmonids.

This activity may also include the construction of log jams (includes logs, slash/brush and sediment) to function as hydraulic controls and encourage the natural processes of scour and channel migration. Construction of larger habitat structures or log jams may incorporate rock and boulders as ballast to ensure that the structures themselves do not migrate with high flows

Processed alluvial material would be created onsite, obtained and imported from off-site gravel processing areas, or purchased from local vendors for delivery. Unprocessed material or “pit-run” dirt and gravel from onsite excavation may be used in the construction of features and for habitat enhancement,

using methods that would be continuously monitored for compliance with turbidity standards when equipment is working in or near the river.

All large wood features would be designed so that local velocities would be safe for navigation during relatively low river flows (less than approximately 2,000 cfs). Natural wood material would be placed in a manner to reduce the chances of hazardous contact with swimmers and boaters at flows less than about 2,000 cfs.

Because of uncertainties about the availability, types, shapes, and sizes of the wood and the planned construction methods, the exact amounts and locations of wood placement are not known at this time. Trees, treetops, and branches for use in constructing large wood structures would be obtained onsite and/or opportunistically from other lawful sources (e.g., public or private lands where vegetation management activities have occurred) and delivered to the project area. The final locations and dimensions of SLJ and WP structure placement would be determined in the field based on direction from Reclamation's field engineer.

Contractor Use Areas (C)

Contractor use areas would be used for stockpiling materials, staging equipment, contractor parking, and similar activities. They may also serve as transportation corridors for moving equipment and materials from one activity area to another. In this event, water would be applied to these areas for dust abatement. To support the intent of rehabilitation, the design team designated contractor use areas in locations that avoid sensitive resources.

There are seven activity areas that would be available as contractor use areas. One of these areas (C-2 a and b) would be a full contractor use area, where minor grading and clearing of vegetation would occur and the area would be used for staging and stockpiling of construction equipment. The remaining six areas would be limited contractor use areas, and disturbance would be minimized. The limited and full contractor use areas would be reviewed by the TRRP and construction contractor before project activities begin.

Vehicular access to three of these (C-5, C-6, and C-7) would be limited by vegetation. These limited contractor use areas would be used primarily for pedestrian access and minor disturbance associated with construction of Area R-11. Although some minor clearing and grading may be required to provide access to work in these areas, effort would be made to avoid mature vegetation to the extent practical.

Four of these areas (C-1, C-2, C-3 and C-4) would be directly associated with the construction and revegetation of riverine and in-channel activity areas (including in-channel wood features). These areas would be necessary for the temporary storage of equipment and materials (e.g., gravel, large wood, slash). Typically, these activity areas are subject to clearing and/or grading to varying degrees to ensure safe and efficient temporary work areas. These activity areas would also be used to store and stage materials (e.g., logs, boulders) at several discrete locations identified by the land owners.

Access Routes

Temporary access routes would be constructed to connect the activity areas to the main entrance route (Figure 2-1 of the EA/IS). Access roads throughout the site support equipment access and construction within the project area, on both the left bank via Phase A access off of Dutch Creek Road and right bank via Sky Ranch Road. Whenever possible, existing roads would be used for access, although some

widening may be necessary. The total length of access roads to be utilized during Phase B construction is 1.3 miles.

There are six routes identified as discrete activity areas (A-3, A-5, A-6, A-6a, A-9, and A-15). None of these are associated with an existing route open to the public. These routes would primarily be used by a wide array of heavy equipment and other vehicles, often requiring two-way traffic. The site-specific design and use of these routes would consider factors like topography, soils, existing vegetation, and the need for future vehicle access, e.g., for revegetation maintenance.

Temporary Crossings (X)

Two temporary river crossings (X-1, X-2) would be required. River crossings would facilitate movement of large equipment and materials from bank to bank. River crossings would be constructed of coarse material. Coarse material for Area X-1 shall meet specifications provided for Area IC-1. Coarse material for Area X-2 shall meet specifications provided for Area IC-3. The number of times the crossings are used would be kept to a minimum to meet turbidity requirements of the permits. The river crossings, made of clean gravel, would be graded to final design elevations or left in place to be moved downstream by high flows post-construction. Construction of fords would utilize imported clean gravel and native alluvial materials excavated from the bed and bank of the Trinity River or adjacent sources. All temporary crossings would be designed and constructed to meet the requirements for heavy equipment such as trucks and excavators. All excavated material (e.g., from lowering floodplains) would be placed on the same side of the river from which it was taken.

Due to requirements to retain passage for fish and boats, at least one-third of a river crossing would be submerged to a minimum depth of one foot under base flow conditions. The construction of these temporary crossings would likely require some vegetation removal on either side of the crossing within an approved activity area adjacent to the crossing (e.g., IC-1). All temporary crossings would be constructed in a manner that does not impede passage of aquatic organisms or navigability of vessels at the crossings.

Design Constraints

Early in the planning process, the TRRP identified several sensitive features that are critical with respect to design considerations (e.g., cultural resources, infrastructure). The design teams worked closely with Reclamation, Forest Service, and BLM cultural resources staff to avoid cultural resource features (e.g., dredge tailing deposits) that provide important information on historic mining along this reach of the Trinity River.

The project area overlaps an active placer gold mining claim (Dredger Camp #2). The claim was established in 2011 and is therefore subject to the Surface Resources Act of 1955, which granted federal agencies authority to manage and dispose of the resources found on the surface of mining claims (NCRWQCB 2019 et al. 2019). A cultural resources investigation identified and surveyed historic placer mines located within the project area (Rich 2020). The investigation resulted in the identification of two historic placer mines and two history dredge tailings areas. To mitigate these areas from project-related impacts, a Historic Dredger Tailing Viewshed has been established with the project area. The tailings viewshed would be retained and signed as an interpretative site to preserve Trinity River mining district historical elements. The tailings viewshed is located near the downstream end of the left bank project area (Reclamation 2018).

Overhead powerlines traverse the Chapman Ranch site near the upstream end of the project area where work is planned (RM 83.5). An existing power pole would need to be protected in place or replaced. Sky Ranch Road and several homes are located within the Chapman Ranch Environmental Study Limit (ESL)[4] and would not be affected by river restoration activities. One well located at the site would need to be protected in place or replaced during construction. The design may not increase the 100-year water surface elevation at any insurable structure within the ESL.

Due to the high fire hazard and history of equipment-caused fires in Trinity County, construction contractors would be required to follow BLM and Forest Service requirements as well as applicable regulations of California Public Resource Code 4428-4442 (Fire Plan for Construction and Service Contracts) during dry periods to minimize the potential for the initiation and spread of fires from the work site. Removal of vegetation (e.g., weed whipping) along access routes may be required to enhance fire prevention and protection during the work period.

REHABILITATION ACTIVITIES

This section describes the proposed rehabilitation activities that would occur under the proposed action in the activity areas shown in Figure 1 and described above. A combination of these activities would take place at each location, concurrently and in sequence. Rehabilitation activities include recontouring, vegetation removal, sediment and gravel movement and augmentation, and revegetation activities. Proposed construction methods are also discussed at the end of this section.

Recontouring and Vegetation Removal

Under the recontouring and vegetation removal activities, the ground surface would be modified to reduce riparian encroachment and the risk of stranding of juvenile salmonids. To varying degrees, vegetation would be cleared and removed at all activity areas that would be subject to rehabilitation activities, with the exception of crossings. Where recontouring is part of the proposed action (e.g., floodplain lowering), the entire site would be subject to vegetation removal, but, where possible, riparian vegetation (e.g., willows) would be salvaged and stored within the project area for use in subsequent revegetation efforts. Grading would be required to construct or enhance topographic features that could develop into functional riparian habitat; excavation and the placement of fill would be balanced. In addition to the activity areas that would be cleared prior to grading, site-specific removal of trees (e.g., conifers and hardwoods) would be required to enhance the safety of the work site, reduce fuel loading, and improve local conditions for individual tree growth and wildlife; the trees that are removed would be used to construct large wood habitat structures. As illustrated by Figure 1, upland and contractor use areas include discrete locations where removal of vegetation is anticipated based on coordination with, and authorization by, BLM, the Forest Service, and landowners.

[4] The Environmental Study Limit, or ESL, is the anticipated geographic limit of project activities with a buffer applied for the purposes of resource identification and associated impact analyses. In addition to in-river rehabilitation/construction areas, these project activities include upland work areas, contractor use (i.e. staging) areas, unpaved access routes, and locations of pre-construction vegetation removal and other disturbances necessary to facilitate work activities. The buffer is sized as determined appropriate for local conditions, based on data (e.g. wetland habitat and wildlife surveys, information from previously-prepared cultural resource inventory reports, etc.) available at the time of its development.

Vegetation removed from activity areas, including contractor use areas, would be used for in-river placement. Large wood would be chipped or masticated for use as organic material to increase nutrients and enhance the water holding for revegetation areas. Activities would be accomplished using a variety of methods, including hand tools and heavy equipment such as excavators, bulldozers, dump trucks, and, potentially, scrapers. Where feasible, existing native riparian vegetation would be maintained to facilitate future recruitment.

Sediment and Gravel Movement and Augmentation

The implementation of the proposed action would require placement of alluvial materials at activity areas throughout the site. The size of alluvial materials necessary to construct the in-channel and floodplain features varies, depending on the function and location of the activity areas. In particular, sediment size is important to the structure of riffles, which would be constructed at IC-1, and IC-3.

Table D-4 describes the size classes of processed alluvial materials specified by the design team that would be excavated from riverine and in-channel activity areas (e.g., IC-1, IC-2, and IC-3) and processed on site at U-2 (Figure 1); in the event quantities of specific size classes are unavailable from within the site, material would be imported from local sources available to the TRRP.

Table D-4. Sediment Material Types and Size Classes for Construction of IC Features

Material	Description	D_{min} (inches)	D_{max} (inches)	Total Volume (Cu Yd)
Unsorted	Sand to 8 inches	Sand	8	1,930
Fish rock	Sorted to be suitable for spawning gravel	5/8	5	5,810
Oversized Rock	Cobble and small boulders between 6 and 12 inches intermediate diameter	6	12	930
Skeletal Rock	Medium cobble and small boulders	12	24	3,430

Wood Placement

The implementation of the proposed action would use large wood and slash to enhance aspects of the design features. A combination of SLJ and WP features would be used to strengthen highly erosive points in select activity areas (e.g., IC-3 and R-3) until vegetation is established. In addition to erosion control, these features would be integrated into the design of R and IC activity areas to provide habitat cover and structure and would slow high-flow velocities to improve aquatic habitat over a range of flows. Slash from on-site and off-site sources would be used to increase site productivity, provide effective ground cover on disturbed areas, and function as cover habitat for terrestrial organisms.

Project features incorporating large wood pieces were designed to create habitat and prevent recapture of the existing mainstem, while simultaneously allowing the design channel morphology to naturally evolve over time. In total, 350 logs would be incorporated into habitat structures, in addition to 38 whole tree placements and 2,050 cubic yards of slash (Table D-5).

Structured Log Jams (SLJs) and wood placement (WP) would be installed to mimic natural wood features that form under historic conditions. The primary onsite sources of wood would include upland and contractor use areas and, to a lesser degree, riverine excavation areas. Where possible, whole trees, including the rootwad, would be removed and used in the construction of SLJ and WP features. In addition, trees removed as part of clearing activities may be felled, bucked, and yarded to locations to meet size specifications. Slash generated from tree removal activities would also be incorporated into the SLJ features and wood placement. Excess slash would be chipped or masticated and used as mulch for erosion control and revegetation efforts.

Structured log jam features would include toe logs set into the channel bed elevation that would stabilize the toe of the channel bank to provide a foundation on which to build the key logs, slash pile, cuttings, and rock, and reduce the tendency for the toe of the bank to slump in case channel incision occurs. A layer of key logs would be installed on top of the toe logs perpendicular to flow. In some cases, it may be beneficial to place the rootwads of key logs into the flow path at a minimum of a 45-degree angle to flow. Slash would be placed under some of the key log rootwads, as well as in a thin layers on top of the key rootwads, prior to addition of ballast and backfill. The intended result is a sequence of cut banks, rootwad cover, and fine woody debris, providing year-round salmonid rearing habitat and better protecting the channel bank from erosion.

Table D-5. Large Wood Material Quantity Estimate for WP Features

Wood Type	Description	Diameter (in)	Length (ft)	Rootwad	Phase B Quantity
Whole Trees	Whole Trees	> 12	50 to100 feet	Yes	18 pcs.
Horizontal Log	Habitat or Structural Logs	~24	10 to 35 ft.	Yes	~400 pcs.
Slash	Small trees, tree branches, and bushes	-	-	-	2,050 cu. Yd.

Large wood used in SLJs and wood placements within design features would be limited to Douglas-fir. Use of other species, which have a different material density, may result in decreased stability due to buoyant forces. Whole tree placement logs would include additional species salvaged on site including but not limited to white alder, cottonwood, grey pine, ponderosa pine, and Pacific willow. Whole tree placement logs would include additional species salvaged on site including but not limited to white alder, cottonwood, grey pine, ponderosa pine, and Pacific willow. Whole tree placements would be constructed by toppling salvaged trees into the flow, pointed in the downstream direction. Some whole tree placements may be pinned or woven between living trees to prevent entrainment. Whole trees would range in length from about 50 feet to about 100 feet5. Typically, the conifers are longer than the hardwoods. Logs range from 10 feet to 35 feet in length. If necessary, wood from off site would be used, but only in the event that there are insufficient woody materials on site.

[5] Trees may be higher, but this length reflects some degree of breakage near the top of the tree prior to transport.

Revegetation Activities

The TRRP's objective for revegetation of the Phase B rehabilitation site is to promote the establishment and growth of a more diverse assemblage of riparian shrubs and deciduous hardwoods with varying ages so that the size, frequency, and distribution of native vegetation would increase in the future. By meeting this objective, the functions and values of native riparian and upland vegetation are expected to increase over time. In addition, the revegetation plan emphasizes the expansion of large conifers and hardwoods that could be naturally recruited as woody material into the mainstem. The revegetation activities described in this section are based on the TRRP's project experience and subsequent yearly monitoring efforts since the first channel rehabilitation site (Hocker Flat) was constructed in 2006.

To varying degrees, impacts to vegetation are anticipated at each activity area. Project activities are designed to ensure that riparian vegetation, in particular, is minimally affected by implementation of the proposed action and is replaced at a 1:1 ratio to meet CDFW's standard of no net loss of riparian area habitat within the Trinity River corridor. Revegetation would provide aquatic refugia at high flows, improve terrestrial habitat for birds and other wildlife, provide future wood recruitment, and provide future terrestrial nutrient input to the river. At this remote location, revegetation efforts would emphasize actions to create conditions that promote natural revegetation via the creation of wet (riparian) conditions. This would include burying or ripping wood into the soil in Upland activity areas to enhance moisture retention.

Under this activity, revegetation of riparian and upland areas would rely on a combination of planting and natural recruitment of native species, consistent with TRRP's 2016 Draft Riparian Revegetation and Monitoring Plan and the needs of the Forest Service, BLM, and other cooperating, responsible, and trustee agencies and landowners. Native willows salvaged from activity areas during initial clearing efforts would be stored and used to revegetate activity areas; the willows would be replanted during construction to speed vegetation recovery. Replanting of affected native vegetation (e.g., shrubs, trees) would be completed after construction in accordance with a site-specific revegetation plan prepared by the TRRP. TRRP only uses plant materials from Phytophthora-inspected nurseries[6]. Wood Placement may be used in any activity area to enhance site conditions to benefit the revegetation effort. All C and U areas would be seeded and mulched with native grass seed; on private and NFS lands, a cover crop of non-persistent recleaned wheat (*Triticum aestivum*) would be planted within the Riverine (R) activity areas in conjunction with wetland plants and willows where appropriate[7].

Revegetation at the Chapman Ranch Phase B rehabilitation site would include preparing planting areas and planting a mixture of wetland, riparian, and upland plant species. A number of the plant species used for revegetation at these sites are used for various purposes by members of the Native American community. Revegetation efforts may also include the use of anadromous salmonid carcasses as a source of supplemental fertilizer in an effort to reintroduce marine nutrients into the riparian ecosystem. The plantings would include: plants salvaged from the site and nursery container stock, and; bare-root plants, herbaceous plugs, and grass, forb, and oak (*Quercus spp.*) seeds.

Plant species expected to be incorporated into the revegetation plan include California brome (*Bromus carinatus*), incense cedar (*Calocedrus decurrens*), sedge (*Carex spp*.), wildrye (*Elymus spp.),* rush

[6]TRRP would ensure that plant materials used on NFS and BLM lands would meet the standards of the appropriate land management agency.

[7] Per BLM policy, recleaned wheat would not be planted on lands managed by BLM.

(*Juncus spp*.), ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), mugwort (*Artemesia douglasii*), madrone (*Arbutus menziesii),* black cottonwood (*Populus trichocarpa),* oak, and willow (*Salix spp.).* Arroyo willow (*Salix lasiolepis*), red willow (*S. laevigata*), and shiny willow (*S. lasiandra*) clumps that are salvaged from excavated areas would be placed in or near wood structures. Cottonwood poles would be planted in select areas as appropriate to increase species diversity. Conifers, madrones, and acorns would be planted in the spoils areas where the soil can be amended with organic material, and planting microsites would be prioritized by the amount of afternoon shade provided by the surrounding topography and vegetation. Organic material amendment consists of wood of various types (chipped, pieces, or logs) buried or ripped into surfaces and/or placed on top (e.g., mulch).

Soil amendments, such as locally-obtained wood grindings and slash, would be incorporated into the soil before planting, and all disturbed areas greater than 4 feet above the summer baseflow water surface elevation would be mulched with weed-free wheat straw at the rate of 2 tons/ac. Revegetation activities may start during the latter part of the construction efforts (e.g., planting and watering as appropriate) and would continue during the wet season (October through March) after final grading and site stabilization measures have been completed. Areas on the right bank are only accessible to equipment by crossing the Trinity River, so most planting there would be completed by the end of the instream limited operating period (anticipated to be September 15, 2019). Planting and seeding efforts may extend into the year following construction, depending on site and weather conditions. Herbaceous bare root material and hardwood poles would be used if planting occurs in or after November.

Most of the areas left barren after construction (e.g., spoils areas, graded features, and disturbed portions of contractor-use areas) would be planted, but no areas would be specifically disturbed so that they would be re-planted. The access routes would be planted with conifers and madrones as part of decommissioning.

The revegetation plan at the Phase B rehabilitation site would include several planting zones; each zone would have different combinations of herbaceous, shrub, and tree species. Plantings in wetland and toe zones would be herbaceous and have approximately 3 feet between plant centers, about 5,500 plants per acre. Plantings in willow, cottonwood, and transition zones would be sedges, shrubs, and trees and have approximately 5 to 8 feet between plant centers, with about 872 plants per acre. Plantings in upland zones would be shrubs and trees and have approximately 10 to 12 feet between plant centers with about 326 plants per acre. Willow trenches would be selectively installed and willow cuttings would be planted at the rate of 10/linear foot. Approximately 16.5 acres would be planted with live plants, and 28 acres (much of it overlapping planted areas) would be seeded with native grasses and mulched.

The TRRP anticipates that most planting areas would be irrigated for up to three years after planting. Water for any irrigation would be pumped from the Trinity River, consistent with existing riparian water rights as made available from willing landowners, or from the river on public lands as authorized by the Forest Service and/or BLM. Equipment would be used to water plants as needed, stored on site for use during dry periods, or brought in as water demands require. Any irrigation measures would be temporary to improve establishment and survival of vegetation. The decision to implement irrigation measures would be based on site-specific monitoring information (e.g., soil moisture, plant stress) concerning planting areas during or after initial revegetation efforts. Irrigation measures would likely occur during the first 3 years following initial revegetation efforts. Post-project monitoring may indicate the need for additional irrigation and other measures to ensure successful revegetation. These measures may include weeding, in-planting, and replanting as conditions require.

Construction Methods and Schedule

Earthmoving equipment that may be used to complete the rehabilitation activities includes off-road articulated dump trucks, wheel loaders, tracked excavators, dozers, push-pull scrapers, water tenders, and graders. In addition, equipment capable of driving piles (e.g., large logs) with a hydraulic ram may be used to anchor or stabilize wood structures in various activity areas. For materials such as large wood that would be hauled from off-site, trucks capable of hauling up to 20 cubic yards at a time would obtain the materials from private forested lands throughout the Trinity River watershed.

Large boulders, cobbles, and gravel would primarily be obtained through processing of alluvial material in the project area (e.g., R-1, R-6, and U-1) or would come from a local commercial source. Gravel would be transported from clean stockpiles stored at previous TRRP channel rehabilitation/gravel processing sites. Potential stockpiles include those on private lands at the Lower Junction City and Upper Junction City sites, as well as at other authorized sources on BLM lands.

The proposed rehabilitation activities may start after completion of the NEPA process and acquisition of all required authorizations are obtained. Pre-construction activities, such as vegetation removal for access and materials (wood and gravel) staging, may occur in the interim between the completion of the NEPA process and the rehabilitation activities if requisite permits and access agreements associated with these activities are in place. Upslope areas may be excavated as early as winter/spring 2021 if dry conditions prevail. In-river work would be initiated as early as summer 2021. The flow-release schedule established for a particular water year may limit surface disturbance activities below the ordinary high-water mark during the late spring through early summer. Processing of alluvial material (e.g., from IC-1, IC-2, and IC-3) could require up to 6 weeks. Revegetation work (e.g., planting of willow pole cuttings and/or container plants and seeding with native grasses) would generally take place in the wet season (fall/winter) following construction or during the year after construction. Post-project, site maintenance construction activities would be conducted as needed during the time period covered by the right-of-way; affected landowners would be notified in advance.

The processing of alluvial material needed for in-river work and fill and subsequent in-river construction are priorities to achieve project goals and reduce environmental impacts. After all in-river (I-C) work is completed, excavation and grading in the floodplains would continue through the fall with construction completed by December. Alternatively, construction would be sequenced as funding and environmental constraints allow, within the guidelines discussed previously discussed in the EA/IS. Post-project in-river site maintenance work (e.g., re-opening blocked side channels, replenishing wood features) would generally take place during the in-river work window (July 15 through October 15) of whatever year maintenance was deemed appropriate. Site maintenance that does not require in-river work or river crossings would generally take place in the fall or in the wet season, outside of the nesting period for bird species present in the area.

ENVIRONMENTAL COMMITMENTS

Reclamation, as the implementing agency for the proposed rehabilitation activities, has committed to implementing the mitigation measures identified in the Master EIR to avoid or minimize potential project impacts (refer to the Master EIR – Appendix A, for a description of these measures). These measures have been incorporated as design features as defined under NEPA and are considered environmental commitments included in the proposed action for purposes of the NEPA analysis. They also serve as

CEQA mitigation measures that would be implemented in accordance with a project-specific mitigation monitoring and reporting program (see EA/IS Appendix F – MMRPs).

Appendix E – Environmental Commitments

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APPENDIX E

Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile 83.5–83.8) Environmental Commitments

Table E-1. Environmental Commitments (EC) [1]

Label	Commitment
Mineral Resources	
EC-MR-1	Reclamation will provide notice of the project to landowners in and adjacent to the project area and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closures. Reclamation will coordinate with private landowners and owners of active mining claims to develop site-specific measures that can be implemented to avoid or lessen project-related impacts to mineral resources associated with the Trinity River and its tributaries.
Fluvial Geomorphology and Soils	
EC-GS-1	Reclamation will implement the following measures during construction activities: Areas where ground disturbance will occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation, as outlined in this EA/IS. (BMP Plan-2) All vehicular construction traffic will be confined to the designated activity areas, access routes, and staging areas. Disturbance will be limited to the minimum necessary to complete all rehabilitation activities. BMP AqEco-3 Clearly delineate the work zone (BMP AqEco-2). All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.
EC-GS-2	Reclamation will prepare a Storm Water Pollution Prevention Plan (SWPPP) to prevent erosion and control sediment into adjacent water bodies. Measures for erosion control will be prioritized based on proximity to the Trinity River. Reclamation will provide the SWPPP for review by associated agencies (e.g., BLM, USFS, the Regional Water Board, NMFS, and CDFW) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction. The following features will be used as a guide to develop this plan: Prepare for unexpected failures of erosion control measures. Maintain a supply of erosion control materials onsite to facilitate a quick response to unanticipated storm events or emergencies. (BMP Fac-2)

[1] Practices specific to Minerals, Geomorphology and Soils, Water Quality, and Fisheries are consistent with or include measures from the April 2012 National Best Management Practices for Water Quality Management on National Forest System Lands. (USDA, Forest Service, Volume 1: National Core BMP Technical Guide, FS-990a. USFS measures designated in parenthesis - (BMPs).

Label	Commitment
	Consider needs for solid waste disposal and worksite sanitation. (BMP AqEco-2). Restore disturbed areas to pre-construction contours to the fullest extent feasible. (BMP Fac-10) Salvage, store, and use the highest quality soil for revegetation. Discourage noxious weed competition and control noxious weeds. Clear or remove roots from steep slopes immediately prior to scheduled construction. Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. To the fullest extent possible, cease excavation activities during significantly wet or windy weather. Use straw bales, wattles, and/or silt fencing as appropriate. Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic. Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The ripping of the river's edge will remove plant roots to allow mobilization of the bed but will also intercept sediment before it reaches the waterway. Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site will drain into a surface water feature, catch basins will be constructed to intercept sediment before it reaches the water body. Spoil sites will be recontoured and revegetated to reduce the potential for erosion. Sediment control measures will be in place prior to the onset of the rainy season to ensure that surface water runoff is minimized. Erosion control in project areas will be monitored and maintained in good working condition until disturbed areas have been seeded and mulched or revegetated in another fashion. If work activities take place during the rainy season, erosion control structures will be in place and operational at the end of each construction day. (BMP Fac-2)
Water Quality	
EC-WQ-1	The project will comply with the water quality objective for turbidity levels in the Trinity River, as listed in the most recent version of the Basin Plan for the North Coast Region (current version dated May 19, 2011), except during construction and the first extended period of high flows, which will comply with the General Permits issued to the TRRP: Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. The 2015 General Order provides an allowable zone of turbidity dilution within which turbidity levels may be increased to more than 20 percent above naturally occurring background levels. Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post -construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated is defined in the 2015 general discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs[2]. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately

[2] At the time ins-stream construction is authorized, the natural background of the Trinity River in the vicinity of the project area typically ranges between 0 and 5 NTU

Label	Commitment
	downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level. To ensure that turbidity levels do not exceed the thresholds described above during in-river project construction activities, Reclamation will monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. During in-river project construction activities, the Applicant shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities (point of compliance) that could increase turbidity. The Applicant shall monitor for turbidity increases and shall collect field turbidity measurements in accordance with Mitigation Measure 4.5 1a and Mitigation Measure 4.51b in the MMRP. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results at the point of compliance indicate that turbidity levels exceed 20 percent above naturally occurring background or 20 NTUs, whichever is greater, remedial actions will be implemented to reduce and maintain turbidity at or below this threshold level at the point of compliance. Potential remedial actions include halting or slowing construction activities and implementation of additional Best Management Practices (BMPs) until turbidity levels are at or below 20 percent above naturally occurring background or 20 NTUs, whichever is greater. A monitoring report containing all turbidity measurements shall be submitted in a tabular format to the Regional Water Board and the land management agencies (Forest Service, BLM) upon annual project completion. The monitoring report shall be written in a manner that clearly demonstrates compliance with all water quality monitoring requirements.
EC-WQ-2	Fill gravels used on the streambeds, stream banks, and river crossings or alluvial material used for coarse sediment additions will be composed of clean, spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Clean gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater. Abutment and embankment materials will be native alluvium available from the project area. (BMP AcEco-2)
EC-WQ-3	Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.
EC-WQ-4	To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following design features, as appropriate: Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed as needed to reduce short-term erosion prior to the start of the rainy season. Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment onsite and prevents sediment delivery to streams. (BMP-Fac-2) Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out.

Label	Commitment
	Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels or other water bodies. Decompact (i.e., deep ripping-up to 18") floodplain areas so that surfaces are permeable, and no surface water runoff occurs. (BMP Fac-10) To reduce sedimentation to the Trinity River, access routes will be stabilized or decommissioned upon completion of work in those areas. Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.
EC-WQ-5	Construction specifications will include the following features to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary: (BMP Fac-7) Equipment and materials will be stored away from wetland and surface water features. No hazardous materials, including fuels, oils, and solvents, will be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling, and servicing of construction equipment must be located in an upland location at least 150 feet from the active river channel or within an adequate secondary fueling containment area. Use vegetable oil or other biodegradable hydraulic oil for heavy equipment hydraulics whenever practicable when operating in or near water. (BMP AqEco-2) Ensure all equipment operated in or adjacent to the waterbody is clean of aquatic invasive species as well as oil and grease and is well maintained. Construction equipment that will come in contact with the Trinity River will be inspected daily. Vehicles will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. External oil, grease, and mud will be removed from equipment using steam cleaning. Wash sites must be located in upland locations so that dirty wash water does not flow into stream channels or wetlands. Untreated wash and rinse water will be adequately treated prior to discharge if that is the desired disposal option. Gasoline engines and pumps operated on the floodplain will be isolated from the ground by an impermeable barrier so that any leaking petroleum products are isolated from the ground. Spill containment booms will be maintained onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times. The contractor will develop and implement site-specific BMPs, a water pollution control plan, and spill prevention and containment plan in accordance with applicable federal and state requirements. The contractor will be responsible for immediate containment and removal of any toxins released.
Fishery Resources	
EC-FR-1	The proposed construction schedule avoids in-channel work during the period which could affect spawning spring- and fall-run Chinook salmon, coho salmon, and steelhead or their embryos once in the gravel. As directed by the 2000 Biological Opinion (National Marine Fisheries Service 2000). Reclamation will ensure that all in-channel construction activities are conducted during late-summer, low-flow conditions (e.g., July 15-September 15). Alluvial material used for coarse sediment additions will be composed of washed, spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter; will be free of contaminants, such as petroleum products; and will pass Caltrans cleanliness test #227 with a value of 85 or greater.
EC-FR-2	To avoid or minimize potential injury and mortality of fish during riverine activities (e.g., addition and grading of coarse sediment), equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area.

Label	Commitment
	Reclamation will minimize potential injury and mortality of fish during the use of low-flow channel crossings. The number and frequency of vehicles crossing the river will be minimized. Equipment and vehicles will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the crossing area, or a person will wade ahead of equipment to scare fish away from the crossing area. If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting DFG and NMFS criteria to prevent entrainment or impingement of small fish. Prior to dewatering, determine the best means to bypass flow through the work area to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic vertebrates. Coordinate project site dewatering with a fisheries biologist qualified to perform fish and amphibian relocation activities. Minimize the length of the dewatered stream channel and duration of dewatering. If the work area requires periodic pumping of seepage, place pumps in flat areas well away from the stream channel. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel. To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials in the active low-flow channel, equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. Reclamation will ensure that before submerging an excavator bucket or laying gravel below the water surface, the excavator bucket will be operated to "tap" the surface of the water, or a person will wade ahead of fill placement equipment to scare fish away from the work area. To avoid impacts to mobile life stages of salmonids that may be present in the water column, the first layers of clean gravel that are being placed into the wetted channel will be added slowly and deliberately to allow fish to move from the work area. To avoid impacts to juvenile salmonids during high flow gravel injections, gravel will be injected only in select locations where juvenile salmonids would not be expected to be holding due to high water velocities.
EC-FR-3	Monitoring of the constructed inundation surfaces for salmon fry stranding will be performed by a qualified fishery biologist immediately after recession of flood flow events designated as a 1.5-year or less frequent event (i.e., Q >6,000 cfs) for a period of 3 years following construction. These flows, and associated fry stranding surveys, will typically occur between January and May. If substantial stranding is observed, Reclamation will take appropriate measures to return stranded fishes to river habitats and to subsequently modify the constructed surfaces prior to the next managed flow release to reduce the likelihood of future occurrences of fry stranding.
EC-FR-4	Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD. (BMP AcEco-2) Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFW, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of riparian habitat after a 10-year monitoring period. If the standard set in the revegetation plan is not met, infill with additional plantings. In addition, wetlands will be re-delineated 5 years post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after project implementation and wetland delineation 5 years after implementation will provide Reclamation with needed data in a timely fashion to take additional proactive measures towards meeting the goals of no net loss of riparian and jurisdictional wetland habitat within rehabilitation site boundaries after 10 years.
EC-FR-5	Low water crossings will only be constructed and used between July 15 and September 15. The number of vehicle and equipment crossings of the Trinity River will be minimized.

Label	Commitment
	Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and water depths will not be less than 12 inches in two-thirds of the river channel to provide adequate depth for adult salmon and steelhead passage. Reclamation will not impede the physical features or hydraulic process of the Trinity River in a fashion that would be inconsistent with the 2000 Biological Opinion (National Marine Fisheries Service 2000) or result in a temporary impairment to fish passage related to a bridge.
Vegetation, Wildlife, and Wetlands	
EC-VW-1	Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats and jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain marked biologically sensitive areas on a regular basis throughout the construction phase. (BMP AqEco-2)
EC-VW-2	A qualified botanist will conduct a minimum of two pre-construction surveys to determine if special-status plant species occur within the project site. Surveys shall be conducted during the blooming periods of the plants potentially occurring at the site to determine (1) if the species occur and (2) the quality, location, and extent of any populations. If a special-status plants species is found within 250 feet of any proposed disturbance, the following measures will be implemented. (BMP AqEco-2) Prior to the start of disturbance, exclusionary fencing will be erected around the known occurrences. If necessary, a qualified botanist shall be present to assist with locating these special-status plant populations. The exclusionary fencing will be periodically inspected throughout each period of construction and be repaired as necessary. If a population cannot be fully avoided, Reclamation will retain a qualified botanist to (1) determine appropriate salvage and relocation measures and (2) implement appropriate measures in coordination with CDFW staff.
EC-VW-3	Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, the following measures will be implemented. Grading and other construction activities will be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 1 through July 31. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, the following measures will be implemented. A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey(s) will be used to ensure that no nests of this species within or immediately adjacent to the rehabilitation site will be disturbed during project implementation. To the extent possible given timing for construction and with the contract award, pre-construction surveys will conform to methodologies identified in a Willow Fly Catcher Survey Protocol for California available online at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=84019&inline> (Bombay et al., 2003). If an active nest is found, CDFW will be contacted prior to the start of construction to determine the appropriate mitigation measures. If vegetation is to be removed by the projects and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the projects will be

Label	Commitment
	removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.
EC-VW-4	If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for the foothill yellow-legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey will be conducted within the construction boundary no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist will relocate them to a suitable location outside of the construction boundary. In the event that a foothill yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until qualified personnel have moved the frog(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.
EC-VW-5	A minimum of one survey for western pond turtle nests will be conducted during the nesting season (generally late June-July) prior to construction. A qualified biologist will be retained by Reclamation to conduct the survey. If a western pond turtle nest is found, the biologist will flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, a qualified biologist will trap and move western pond turtles out of the construction area to nearby suitable habitats. During construction, in the event that a western pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until qualified personnel have moved the turtle(s) to a safe location within suitable habitat outside of the construction limits. Planned locations for placement of transferred animals will be downstream of the construction limits and will be reported to the CDFW prior to construction.
EC-VW-6	Prior to the start of construction, a qualified biologist will conduct surveys of the rehabilitation sites to determine whether suitable nesting habitat for California yellow warblers, yellow-breasted chats, yellow rail and Vaux's swifts is present. If suitable habitat is present, the following measures will be implemented. Grading and other construction activities will be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through July 31. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, the following measures will be implemented. A qualified biologist will conduct a minimum of one preconstruction survey for these species within the rehabilitation sites and a 250-foot buffer around the sites. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction surveys will be used to ensure that no nests of these species within or immediately adjacent to the rehabilitation sites will be disturbed during project implementation. If an active nest is found, a qualified biologist will determine the extent of a construction-free buffer zone to be established around the nest. If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (e.g., shrubs and trees) that will be removed by the projects will be removed before the onset of the nesting season (typically March 1 for migratory song birds). This will help preclude nesting and substantially decrease the likelihood of direct impacts.
EC-VW-7	Due to the removal of the bald eagle from the endangered species list and the availability of the National Bald Eagle Management Guidelines provided by the U.S. Fish and Wildlife Service to protect the bald eagle, modified commitments are outlined below. These measures are now stricter than those outlined in the Master EIR and provide additional protections for the bald eagle to abide by directives of the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation sites to determine whether potential bald eagle or northern goshawk habitat occurs. If potential habitat occurs, Reclamation will implement the following commitment.: Construction will be scheduled to avoid the bald eagle and northern goshawk nesting season to the extent feasible. The nesting season for most raptors in Trinity County extends from January 1 through

Label	Commitment
	July 31. Thus, if construction can be scheduled to occur between August 1 and January 1, the nesting season will be avoided and no impacts to nesting bald eagles or northern goshawks would occur. If it is infeasible to schedule construction during this time, Reclamation will implement the provisions outlined in the incidental take permit for bald eagles issued by the USFWS prior to initiation of construction.
EC-VW-8	Pre-construction surveys for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The surveys will be conducted by a qualified biologist. No activities that will result in disturbance to active roosts of special status bats or dens of ring-tailed cats will proceed prior to completion of the surveys. If no active roosts or dens are found, no further action is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified bat biologist will determine the extent of a construction-free zone to be implemented around the roost. If a bat maternity roost or hibernaculum is present, or a ring-tailed cat den is present, the following commitment will be implemented. CDFW will also be notified of any active bat nurseries within the disturbance zones. If an active maternity roost or hibernaculum is found, the projects will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the projects cannot be redesigned to avoid removal of the structure, demolition of that structure will commence before bat maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). The disturbance-free buffer zones described above will be observed during the bat maternity roost season (March 1–July 31). If a non-breeding bat hibernaculum is found in a tree or structure to be razed, the individuals will be safely evicted under the direction of a qualified bat biologist, by opening the roosting area to allow air to flow through the cavity. Demolition will then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for air flow and the demolition). This action will allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during darker hours. Ring-tailed cats are fully protected species under Fish and Game Code Section 4700. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research. If an active ring-tailed cat nest is found, the projects will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the projects cannot be redesigned to avoid removal of the occupied tree, the CDFW will be contacted for their input. If approved by CDFW, demolition of the tree will commence outside of the breeding season (February 1 to August 30). If a non-breeding den is found in a tree scheduled to be removed, prior to disturbance, the CDFW will be notified to review and approve proposed procedures to ensure that no take occurs as a result of the action. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.
EC-VW-9	In order to avoid and/or minimize the potential introduction and/or spread of noxious weeds, the following measures will be implemented: When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed. Preclude the use of rice straw in riparian areas. Limit any import or export of fill to materials that are known to be weed free. Ensure all construction equipment is thoroughly washed prior to entering and leaving the worksite. Equipment will be inspected to ensure that it is free of plant parts as well as soils, mud, or other debris that may carry weed seeds. Use a mix of native grasses, forbs, and on NFS and private lands potentially non-persistent non-native species (i.e., recleaned wheat) for seeding disturbed areas that are subject to infestation by non-native and invasive plant species. [3]Where appropriate, a heavy application of mulch will be used to discourage introduction of these species. Use of planting plugs of native grass species may also be used to accelerate occupation of disturbed sites and increase the likelihood of reestablishing a self-sustaining population of native plant species.

[3] Per BLM policy, non-persistent non-native species would not be used on lands managed by BLM.

Label	Commitment
	Within the first 3 to 5 years post-project, if it is determined that the project has caused non-native invasive vegetation to out-compete desired planted or native colonizing riparian vegetation, opportunities to control these non-native species will be considered. When implementing weed control techniques, the approach will consider using all available control methods known for a weed species if those control methods are in conformance with existing agency and landowner policies and consistent with NEPA/CEQA requirements. Within the first 3 to 5 years post-project, if it is determined that onsite revegetation/post-project conditions do not meet landowner requirements, opportunities to revisit the site and remedy the concern will be considered. Avoid areas contaminated with known occurrences of *Didymosphenia geminata* (didymo). If no uncontaminated areas are available for water drafting, water drafting equipment will be cleaned by approved methods prior to drafting water from an uncontaminated location. Didymo-infested water shall be discharged away from a water source or from the same source where it was taken.
EC-VW-10	Reclamation will develop and implement a plan to minimize impacts to freshwater mussels {e.g., western pearlshell mussel), terrestrial snails (and lamprey ammocetes that occupy habitat within the project area. This plan will include measures to collect, transport and relocate mussel populations to appropriate alluvial habitat within the project area. Relocation of ammocetes would occur using techniques to extract them from substrate habitat and move into the water column; thereby being transported to alluvial habitat downstream.
Recreation	
EC-RE-1	Reclamation will provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Notification signs shall be posted at public river access areas located within the project area and managed by BLM and USFS. Signs and/or buoys shall also be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Additionally, public notification of proposed project construction activities and associated safety hazards shall be circulated in the local Trinity Journal newspaper prior to the onset of project construction.
EC-RE-2	Reclamation will repair and/or replace any facilities associated with the project that are impacted by project activities. This feature includes installation of interpretive signage consistent with the requirements of the BLM. Preconstruction meetings between Reclamation and landowners/land managers will identify the amount of vegetative screening to be retained at each recreation site within the project area.
Cultural Resources	
EC-CU-1	Prior to initiation of construction or ground-disturbing activities, all construction workers will be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel will be instructed that upon discovery of buried cultural resources, work within 50 feet of the find will be halted and the designated archaeologists for Reclamation and the respective land management agency will be consulted. Once the find has been identified, Reclamation, in coordination with the respective land management agency, will be responsible for developing and authorizing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the PA and in compliance with the NHPA.
EC-CU-2	If human remains are encountered during construction on non-federal lands, work in that area will be halted and the Trinity County Coroner's Office will be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by PRC, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 48 hours from the time that they gain access to the site. The NAHC will mediate any disputes regarding treatment of remains. If Native American human remains and associated items are discovered on federal lands, they will be treated according to provisions set forth in the Native American Graves Protection and Repatriation Act (25 USC 3001) as well as Reclamation's Directives and Standards LND 02-01. If the find is determined to be a historical resource or a unique

Label	Commitment
	archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation will be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.
Air Quality	
EC-AQ-1	Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: Inactive construction areas will be watered as needed to ensure dust control. Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1-2 feet vertical distance between top of load and the trailer). Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion. Watering (using equipment and/or manually) will be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. All paved access roads, parking areas, and staging areas will be swept (with water sweepers), as required by Reclamation. Paved roads will be swept (with water sweepers) if visible soil material is carried onto adjacent private and public roads, as required by Reclamation. All ground-disturbing activities with the potential to generate dust will be suspended when winds exceed 20 mph, as directed by the NCUAQMD. Reclamation or its contractor will designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. This person will also respond to citizen complaints. Reclamation will comply with NCUAQMD Rule 104 (4.0) Particulate Matter. This compliance could occur by using portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).
EC-AQ-2	Reclamation has not burned piles on a TRRP channel rehabilitation project since the Canyon Creek Suite of sites were constructed in 2006. In the event burning of material is required, these practices would apply. Vegetative piles to be burned will consist only of dried vegetative materials. Burn piles will be no larger than 10 feet in diameter. Reclamation would ensure that field personnel will be onsite during all hours of burning, and materials necessary to extinguish fires will be available at all times. In general, all requirements of a NCUAQMD "Non-Standard" burn permit will be met for burning. Burn management planning will include but not be limited to the following: Ensure that burning occurs only on approved burn days as defined by the NCUAQMD (determined by calling 1-866-BURN-DAY). Burning will only occur during suitable conditions to ensure control of ignited fires. For instance, water to wet the litter and duff layer and penetrate the mineral soil layer to 1/4 inch or more will be present, wind speeds will be low (<10 mph), and temperature will be low (<80 ºF). Piles will be covered with a 5-foot x 5-foot sheet of 4-mil polyethylene plastic to promote drying of the slash. At least 3/4 of each pile surface will be covered and the plastic anchored to preserve a dry ignition point. Dry fuel conditions will minimize smoke emissions.

Label	Commitment
	Slash piles will not be constructed on logs, stumps, or talus slopes within 25 feet of wildlife trees with nest structures, in roadways, or in drainage ditches. Piles will not be placed within 10 feet of trees intended to be saved (reserved trees) or within 25 feet of a unit boundary. Reclamation will notify the public each day that burning is to occur. Signs or personnel will notify residents and traffic on nearby access routes.
EC-AQ-3	Construction activity occurring within 300 feet of elementary schools will be limited to the period when school is not in session. Construction activity occurring within 300 feet of residences will be limited to Monday through Saturday, from the hours of 9 a.m. to 5 p.m. Reclamation will notify residences within 300 feet of the site and project activity and elementary schools will be notified of construction activity located near the school prior to site construction activities.
EC-AQ-4	Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation site, which contains a phone number for the public to contact for concerns related to air quality.
Noise	
EC-NO-1	Construction activities near residential areas will be scheduled between 7:00 a.m. and 7:00 p.m., Monday through Saturday. No construction activities will be scheduled for Sundays or other hours and days established by the local jurisdiction (i.e., Trinity County). The contractor may submit a request for variances in construction activity hours from Reclamation, as needed.
EC-NO-2	Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices. Reclamation will require placement of all stationary noise-generating equipment as far away as feasibly possible from sensitive noise receptors or in an orientation minimizing noise impacts (e.g., behind existing barriers, storage piles, unused equipment).
Public Services	
EC-PS-1	Reclamation will require that staging and construction work, including temporary road or bridge closures occurs in a manner that allows for access by emergency service providers. Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures.
EC-PS-2	Reclamation will coordinate road closures occurring during the school year (mid-August through mid-June) with the appropriate school districts to avoid disruption of school attendance and student access to bus service.
Transportation/Traffic Circulation	
EC-TC-1	Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that gravel trucks maintain a speed limit of 15 mph on residential and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.
EC-TC-2	Reclamation will maintain access throughout the construction period for all private residences adjacent to the project boundary and access roads adjacent to the Trinity River. During the construction phase of the project, Reclamation will limit the amount of daily construction equipment traffic by staging construction equipment and vehicles within the project boundary throughout the work period. All large equipment "lowbed" movements will be performed as required by CHP/Caltrans, etc., using pilot vehicles in the front and rear. A "scout vehicle" can be sent forward in the narrow areas to avoid/advise oncoming public traffic.
EC-TC-3	Reclamation will perform a pre-construction survey of local federal and state roads to determine the existing roadway conditions of the construction access routes and will consult with the relevant

Label	Commitment
	agencies/private parties about road conditions prior to construction activity and post construction activity. An agreement will be entered into prior to construction that will detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.
EC-TC-4	Reclamation will prepare and implement a traffic control plan that will include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities. During the times that truck traffic and movement of equipment may result in a traffic obstacle or safety hazard (as defined in the traffic control plan), construction flagging and/or pilot cars will be used to ensure safe traffic conditions on Sky Ranch Road and other public access routes. Reclamation will obtain encroachment permits from the appropriate entities to work within road easements. These permits will require traffic control and signage to meet California standards.

Appendix F – Migration Monitoring and Reporting Program and Project Design Elements

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APPENDIX F

Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile 83.5–83.8) Mitigation Monitoring and Reporting Program and Project Design Elements

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California Lead Agency for CEQA
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Federal Co-Lead Agency for NEPA
U.S. Department of Interior – Bureau of Land Management
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Ironwood Consulting, Inc.
370 Alabama Street, Suite A
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APPENDIX F

Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile 83.5–83.8) Mitigation Monitoring and Reporting Program and Project Design Elements

INTRODUCTION

The first part of this document comprises the Mitigation Monitoring and Reporting Program (MMRP) for the Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile 83.5–83.8) (the proposed project). The purpose of providing the MMRP as an appendix is to facilitate its use as a stand-alone CEQA compliant document, which clearly expresses to the reader the mitigation responsibilities of the Bureau of Reclamation (Reclamation), and Regional Water Quality Control Board – North Coast Region (Regional Water Board) in implementing the project. The mitigation measures listed herein, which are an updated version of those included in the Master Environmental Impact Report (EIR) (North Coast Regional Water Board and Reclamation 2009), are required by law or regulation and will be adopted by the Regional Water Board when it issues a Notice of Applicability for the project. The second part of this document consists of project design elements that shall be implemented as part of the proposed project. In general, mitigation measures identified in Chapter 3 of this Environmental Assessment/Initial Study (EA/IS) correspond to Chapter 4 mitigation measures in the 2009 Master EIR. The mitigation measures in this appendix are meant to mitigate for the same impacts as those identified in the Master EIR. Consequently, these mitigation measures are different only to the extent necessary to tailor the mitigation measures to the site-specific conditions.

Mitigation is defined by the California Environmental Quality Act (CEQA) – Section 15370 as a measure that:

- avoids the impact altogether by not taking a certain action or parts of an action;
- minimizes impacts by limiting the degree or magnitude of the action and its implementation;
- rectifies the impact by repairing, rehabilitating, or restoring the impacted environment;
- reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project; and
- compensates for the impacts by replacing or providing substitute resources or environments.

The mitigation program identified in the MMRP to reduce potential project impacts consists of mitigation measures, project design elements, and construction criteria and methods. Mitigation measures provided in this MMRP have been identified in Chapter 3, Affected Environment and Environmental Consequences, of the EA/IS as feasible and effective in mitigating project-related environmental impacts. This MMRP includes discussion of the following: legal requirements, intent of the MMRP, development and approval process for the MMRP, the authorities and responsibilities associated with the

implementation of the MMRP, a description of the mitigation summary table, project design elements, construction criteria and methods, and resolution of noncompliance complaints.

LEGAL REQUIREMENTS

The legal basis for the development and implementation of the MMRP lies within CEQA (including the California Public Resources Code [PRC]). Sections 21002 and 21002.1 of the California PRC state:

- Public agencies are not to approve projects as proposed if there are feasible alternatives or feasible mitigation measures available that would substantially lessen the significant environmental effects of such projects.

- Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so.

- Section 21081.6 of the California PRC further requires: The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.

- The monitoring program must be adopted when a public agency makes its findings under CEQA so that the program can be made a condition of project approval in order to mitigate significant effects on the environment. The program must be designed to ensure compliance with mitigation measures during project implementation to mitigate or avoid significant environmental effects.

INTENT OF THE MITIGATION MONITORING AND REPORTING PROGRAM

The MMRP is intended to satisfy the requirements of CEQA as they relate to the project. It is anticipated to be used by Reclamation and Regional Water Board staff, participating agencies, project contractors, and mitigation monitoring personnel during implementation of the project.

The primary objective of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMRP will provide for monitoring of construction activities as needed, onsite identification and resolution of environmental problems, and proper reporting to lead agency staff.

DEVELOPMENT AND APPROVAL PROCESS

The timing elements for implementing mitigation measures and the definition of the approval process have been provided in detail through this MMRP to assist staff from Reclamation and the Regional Water Board by providing the most usable monitoring document possible.

AUTHORITIES AND RESPONSIBILITIES

As the project proponent, Reclamation, functioning as the Trinity River Restoration Program (TRRP), will have the primary responsibility for the execution and proper implementation of the MRRP. The Regional Water Board may provide Reclamation with guidance, as warranted. Reclamation will be responsible for the following activities:

- Coordination of monitoring activities,

- Management of the preparation and filing of monitoring compliance reports, and
- Maintenance of records concerning the status of all approved mitigation measures.

SUMMARY OF MONITORING REQUIREMENTS

Table F-1, which follows, summarizes the mitigation measures and associated monitoring requirements for the proposed project. The mitigation measures are organized by environmental issue area (i.e., Soils, Water Quality, etc.). Table F-1 is composed of the following four columns:

- **Mitigation Measure:** Lists the mitigation measures identified for each significant impact discussed in the Draft EA/IS for the project. The mitigation numbering system used in the Draft Master EIR/Draft EIR is carried forward in this MMRP.

- **Timing/Implementation:** Indicates at what point in time or project phase the mitigation measure is implemented.

- **Responsible Parties (tasks):** Documents which agency or entity is responsible for implementing a mitigation measures and what, if any, coordination is required (e.g., approval from Caltrans). If more than one party has responsibility under a given mitigation measure, the tasks of each individual party is identified parenthetically (e.g., "implementation" or "monitoring").

- **Verification:** Provides spaces to be initialed and dated by the individual responsible for verifying compliance with each specific mitigation measure.

RESOLUTION OF NONCOMPLIANCE COMPLAINTS

Any person or agency may file a complaint that states noncompliance with the mitigation measures that were adopted as part of the approval process for the project. The complaint shall be directed to Reclamation at the TRRP office (P.O. Box 1300, 1313 South Main Street, Weaverville, California 96093) and to the Regional Water Board at 5550 Skylane Boulevard, Suite A, Santa Rosa, California, 95403, in written form, providing detailed information on the purported violation. Reclamation and the Regional Water Board shall investigate and determine the validity of the complaint. If noncompliance with a mitigation measure is verified, Reclamation shall take the necessary action(s) to remedy the violation. The complainant shall receive written confirmation indicating the results of the investigation or the final corrective action that was implemented in response to the specific noncompliance issue.

Table F-1. Summary of Mitigation Monitoring Requirements

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.2 LAND USE			
Impact 4.2-3: Implementation of the project may affect the availability of a locally important mineral resource recovery site.			
4.2-3a Reclamation shall provide notice of the project to landowners within the Remaining Phase 1 and Phase 2 sites and to individuals with mining claims within the project sites. Notice will be given prior to project implementation and will include a schedule of river access closure.		Reclamation	
4.3 GEOLOGY, FLUVIAL GEOMORPHOLOGY, AND SOILS			
Impact 4.3-2: Construction activities associated with the project could potentially result in increased erosion and short-term sedimentation of the Trinity River.			
4.3-2a Reclamation will implement the following measures during construction activities: • Areas where ground disturbance would occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation. • All vehicular construction traffic will be confined to the designated access routes and staging areas. • Disturbance will be limited to the minimum necessary to complete all rehabilitation activities. • All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.		Reclamation (implementation) Regional Water Board (SWPPP review and approval) BLM (SWPPP review) NFMS (SWPPP review) CDFG (SWPPP review)	
4.3-2b Reclamation will prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention Plan [SWPPP]). Measures for erosion control will be prioritized based on proximity to the river. Reclamation will provide the SWPPP for review by associated agencies (e.g., BLM, the Regional Water Board, NMFS, and CDFG) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction. The following measures will be used as a guide to develop this plan: • Restore disturbed areas to pre-construction contours to the fullest extent feasible. • Salvage, store, and use the highest quality soil for revegetation. • Discourage noxious weed competition and control noxious weeds. • Clear or remove roots from steep slopes immediately prior to scheduled construction. • Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff. • To the fullest extent possible, cease excavation activities during significantly wet or windy weather. • Use bales, wattles, and/or silt fencing as appropriate. • Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic. • Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The furrowing of the river's edge will remove plant roots to allow mobilization of the			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
bed, but will also intercept sediment before it reaches the waterway. • Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site would drain into a surface water feature, catch basins will be constructed to intercept sediment before it reaches the feature. Spoil sites will be graded and vegetated to reduce the potential for erosion. • Sediment control measures will be in place prior to the onset of the rainy season to ensure that surface water runoff does not occur. Project areas will be monitored and maintained in good working condition until disturbed areas have been revegetated. If work activities take place during the rainy season, erosion control structures must be in place and operational at the end of each construction day.			
Impact 4.3-3: Implementation of the project would interfere with existing, proposed, or potential development of mineral resources.			
4.3-3a Reclamation will implement the following measures during construction: • Areas where ground disturbance would occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation. • All vehicular construction traffic will be confined to the designated access routes and staging areas. • Disturbance will be limited to the minimum necessary to complete all rehabilitation activities. • All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.		Reclamation (implementation)	
4.3-3b Reclamation will prepare an erosion and sedimentation control plan (SWPPP) as stipulated in Mitigation Measure 4.3-2b.			
4.3-3c Reclamation will coordinate with private land owners and owners of active mining claims to develop site-specific measures that can be implemented to avoid, or lessen project-related impacts to mineral resources associated with the Trinity River and its tributaries.			
4.5 WATER QUALITY			
Impact 4.5-1: Construction of the project could result in short-term temporary increases in turbidity and total suspended solids levels during construction.			
4.5-1a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2007), is summarized below. • Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. • Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. • Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages would be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.			
4.5-1b To ensure that turbidity levels do not exceed the thresholds described above (4.5-1a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.5-1c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of clean spawning-sized gravels from a local Trinity River basin source. Gravel will be processed to remove silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products.			
4.5-1d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.			
4.5-1e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: • Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. • Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. • Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels. • Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.			
Impact 4.5-2: Construction of the project could result in short-term temporary increases in turbidity and total suspended solids levels following construction.			
4.5-2a Turbidity increases associated with project activities will not exceed the water quality objectives for turbidity in the Trinity River basin (North Coast Regional Water Quality Control Board 2007).			
4.5-2b To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas consistent with the requirements outlined in Chapter 2 (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.			
Impact 4.5-3: Construction of the project could cause contamination of the Trinity River from hazardous materials spills.			
4.5-3a Reclamation will prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements.			
4.5-3b Reclamation will ensure that any construction equipment that would come in contact with the Trinity River be inspected daily for leaks prior to entering the flowing channel. External oil,			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water must be adequately treated prior to discharge if that is the desired disposal option.			
4.5-3c Reclamation will ensure that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling, and servicing will be located at least 150 feet from the active river channel or within an adequate secondary fueling containment area. In addition, the construction contractor will be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.			
Impact 4.5-5: Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.			
Water quality Mitigation Measures 4.5-1a-e, 4.5-2a-c, and 4.5-3a-c provide measures to protect the beneficial uses of the Trinity River.			
4.6 FISHERY RESOURCES			
Impact 4.6-1: Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon.			
4.6-1a The proposed construction schedule avoids in-channel work during the time period that could affect spawning spring- and fall-run Chinook salmon, coho salmon, and steelhead, or their embryos once in the gravel. As directed by the 2000 Biological Opinion, Reclamation will ensure that all in-channel construction activities are conducted during late-summer, low-flow conditions (e.g., July 15–September 15).		Reclamation (implementation)	
4.6-1b Alluvial material used for coarse sediment additions will be composed of clean spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River basin source. Gravel will be processed to remove any silts, sand, clay, and organic matter and will be free of contaminants, such as petroleum products.			
Impact 4.6-2: Implementation of the project could result in increased erosion and sedimentation levels that could adversely affect fishes, including the federally and state listed coho salmon.			
4.6-2a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2007), is summarized below. • Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
• Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. • Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages would be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.			
4.6-2b To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.6-2c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of clean spawning-sized gravels from a local Trinity River basin source. Gravel will be processed to remove silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products.			
4.6-2d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.			
4.6-2e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols: • Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. • Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. • Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels. • Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.			
Impact 4.6-3: Construction activities associated with the project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state listed coho salmon.			
4.6-3a Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary: • Equipment and materials will be stored away from wetland and surface water features. • Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. • The contractor will develop and implement site-specific BMPs, a water pollution control plan, and emergency spill control plan. The contractor will be responsible for immediate containment and removal of any toxins released.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.6-4: Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state listed coho salmon.			
4.6-4a To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15.			
4.6-4b To avoid or minimize potential injury and mortality of fish during riverine activities (e.g. removal of grade control structures, channel crossings, addition and grading of coarse sediment), equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area.			
4.6-4c Reclamation will minimize potential injury and mortality of fish during the use of low-flow channel crossings. This will be accomplished by minimizing vehicle traffic and by operating equipment and vehicles slowly and deliberately to alert and scare adult and juvenile salmonids away from the crossing area, or by having a person wade ahead of equipment to scare fish away from the crossing area.			
4.6-4d To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials within the active low-flow channel, equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. Reclamation will ensure that before submerging an excavator bucket or laying gravel below the water surface, the excavator bucket will be operated to "tap" the surface of the water, or a person will wade ahead of fill placement equipment to scare fish away from the work area. To avoid impacts to mobile life stages of salmonids that may be present in the water column, the first layers of clean gravel that are being placed into the wetted channel will be added slowly and deliberately to allow fish to move from the work area.			
4.6-4e To avoid impacts to juvenile salmonids during high flow gravel injections, gravel will only be injected in select locations where water velocities are too high, and juvenile salmonids would not be expected to be holding.			
4.6-4f Monitoring of the constructed inundation surfaces for salmon fry stranding will be performed by a qualified fishery biologist immediately after recession of flood flow events designated as a 1.5- year or less frequent event (i.e., Q >6,000 cfs) for a period of 3 years following construction. These flows, and associated fry stranding surveys, would typically occur between January and May. If substantial stranding is observed, Reclamation will take appropriate measures to return stranded fishes to river habitats and to subsequently modify the constructed surfaces prior to the next managed flow release to reduce the likelihood of future occurrences of fry stranding.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.6-5: Implementation of the project would result in the permanent and temporary loss of shaded riverine aquatic habitat (SRA) for anadromous salmonids.			
4.6-5a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the project to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats and wetland waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.		Reclamation (implementation)	
4.6-5b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			
4.6-5c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be redelineated 5 years post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 3 years after project implementation and wetland delineation 5 years after implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian and jurisdictional wetland habitat within Project site boundaries after 10 years.		Reclamation (implementation)	
Impact 4.6-6: Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.			
4.6-6a Low water crossings will only be constructed and used between July 15 and September 15. Fill gravels used on the low-water crossings, streambeds, and stream banks will be composed of clean spawning-sized gravels from a local Trinity Basin source. Gravel will be processed to remove silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Abutment and embankment materials used for bridges will be native alluvium obtained from within the boundaries of the Remaining Phase 1 or Phase 2 sites.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.6-6b Reclamation will construct the low-flow channel crossings to allow adequate depths and velocities for adult and juvenile salmonids to pass safely. Flows associated with storm events are not considered critical because the width and hydrologic conditions associated with low-flow channel crossings in the Trinity River are not considered to limit fish passage at elevated flows and would be comparable to hydrologic conditions in local riffle-and-run features. For Trinity River low-flow channel crossings at base flows, velocities will not exceed 2 feet per second to allow for juvenile fish passage and water depths will not be less than 12 inches in two-thirds of the river channel to provide adequate depth for adult salmon and steelhead passage.			
4.6-6c The number of vehicle and equipment crossings of the Trinity River will be minimized.			
4.6-6d Reclamation will not impede the physical features or hydraulic process of the Trinity River in a fashion that would be inconsistent with the 2000 Biological Opinion, or result in a temporary impairment to fish passage related to a bridge.			
4.7 VEGETATION, WILDLIFE, AND WETLANDS			
Impact 4.7-1: Construction activities associated with the project could result in the loss of jurisdictional waters, including wetlands.			
4.7-1a Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.		Reclamation (implementation)	
4.7-1b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.			
4.7-1c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 3 years, the need for additional riparian habitat and wetland enhancement will be evaluated. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of wetlands at the end of a 5 year period and no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be re-delineated 5 years post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 3 years after project implementation and wetland delineation 5			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
years after implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian and jurisdictional wetland habitat within boundaries established for TRRP rehabilitation sites after 10 years.			
Impact 4.7-3: Construction of the project could result in the loss of individuals of a special-status plant species.			
4.7-3a A qualified botanist will conduct a minimum of two pre-construction surveys to determine if special-status plant species occur within the project site. Surveys shall be conducted during the blooming periods of the plants potentially occurring at the site to determine (1) if the species occur and (2) the quality, location, and extent of any populations. If a special-status plants species is found within 250 feet of any proposed disturbance, Mitigation Measures 4.7-3b and 4.7-3c will be implemented.		Reclamation (implementation)	
4.7-3b Prior to the start of disturbance, exclusionary fencing will be erected around the known occurrences. If necessary, a qualified botanist shall be present to assist with locating these special-status plant populations. The exclusionary fencing will be periodically inspected throughout each period of construction and be repaired as necessary.			
4.7-3c If a population cannot be fully avoided, Reclamation will retain a qualified botanist to (1) determine appropriate salvage and relocation measures and (2) implement appropriate measures in coordination with CDFG staff.			
Impact 4.7-4: Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.			
4.7-4a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, Grading and other construction activities will be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 1 through July 31. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, Mitigation Measures 4.7-4c and 4.7-4d will be implemented.		Reclamation (implementation)	
4.7-4b Grading and other construction activities will be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 1 through July 31. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, Mitigation Measures 4.7-4c and 4.7-4d will be implemented.			
4.7-4c A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the project site(s) and a 250-foot buffer around the site(s). The survey will be conducted no more than 15 days prior to the initiation of construction in any given area.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
The pre-construction survey will be used to ensure that no nests of this species within or immediately adjacent to the project site(s) would be disturbed during project implementation. If an active nest is found, CDFG will be contacted prior to the start of construction to determine the appropriate mitigation measures.			
4.7-4d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the project will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.			
Impact 4.7-5: Construction activities associated with the project could result in impacts to the foothill yellow-legged frog.			
4.7-5a If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for yellow- legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey would need to be conducted within the construction boundary no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist will relocate them to a suitable location outside of the construction boundary.		Reclamation (implementation)	
4.7-5b In the event that a yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits.			
4.7-5c Mitigation measures presented in Section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the yellow-legged frog due to sedimentation and accidental spills.			
4.7-5d The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.			
Impact 4.7-6: Construction activities associated with the project could result in impacts to the western pond turtle.			
4.7-6a A minimum of one survey for pond turtle nests will be conducted during the nesting season (generally late June-July) prior to construction. A qualified biologist will be retained by Reclamation to conduct the survey. If a pond turtle nest is found, the biologist will flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, the nest will be excavated by the biologist and reburied at a suitable location outside of the construction limits.		Reclamation (implementation)	
4.7-6b Prior to construction in open water habitat, a qualified biologist will trap and move turtles out of the construction area to nearby suitable habitats.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-6c During construction, in the event that a pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until the turtle has been moved to a safe location within suitable habitat outside of the construction limits.			
4.7-6d Mitigation measures presented in section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills.			
4.7-6e The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.			
Impact 4.7-7: Construction activities associated with the project could result in impacts to nesting California yellow warblers, yellow-breasted chats, and Vaux's swifts.			
4.7-7a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, grading and other construction activities will be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through July 31. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, Mitigation Measures 4.7-7c and 4.7-7d will be implemented.		Reclamation (implementation)	
4.7-7b Grading and other construction activities will be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through July 31. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, Mitigation Measures 4.7-7c and 4.7-7d will be implemented.			
4.7-7c A qualified biologist will conduct a minimum of one preconstruction survey for these species within the project site(s) and a 250-foot buffer around the site. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction survey will be used to ensure that no nests of these species within or immediately adjacent to the project site(s) would be disturbed during project implementation. If an active nest is found, a qualified biologist will determine the extent of a construction-free buffer zone to be established around the nest.			
4.7-7d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (e.g., shrubs and trees) that will be removed by the project will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.7-8: Construction activities associated with the project could result in impacts to nesting bald eagles and northern goshawk.			
4.7-8a Prior to the start of construction, a qualified biologist will conduct a survey of the project site(s) to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, construction will be scheduled to avoid the nesting season for bald eagles and northern goshawks to the extent feasible. The nesting season for most raptors in Trinity County extends from February 15 through July 31. Thus, if construction can be scheduled to occur between August 1 and February 14, the nesting season will be avoided and no impacts to nesting bald eagles and northern goshawks would be expected. If it is not possible to schedule construction during this time, Mitigation Measures 4.7-8c and 4.7-8d will be implemented.		Reclamation (implementation)	
4.7-8b Construction will be scheduled to avoid the nesting season for bald eagles and northern goshawks to the extent feasible. The nesting season for most raptors in Trinity County extends from February 15 through July 31. Thus, if construction can be scheduled to occur between August 1 and February 14, the nesting season will be avoided and no impacts to nesting bald eagles and northern goshawks would be expected. If it is not possible to schedule construction during this Mitigation Measures 4.7-8c and 4.7-8d will be implemented.			
4.7-8c Pre-construction surveys for nesting northern goshawks will be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the biologist will inspect all trees immediately adjacent to the impact areas for bald eagle and northern goshawk nests. If an active nest is found close enough (i.e., within 500 feet) to the construction area to be disturbed by these activities, the biologist, in consultation with the CDFG, will determine the extent of a construction-free buffer zone to be established around the nest.			
4.7-8d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the project will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.			
Impact 4.7-9: Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.			
4.7-9a A pre-construction survey for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The survey will be conducted by a qualified biologist. No activities that would result in disturbance to active roosts of special-status bats or dens of ring-tailed cats will proceed prior to completion of the surveys. If no active roosts or dens are found, no further action is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified bat biologist will determine the extent of a construction-free zone to be implemented around the roost. If a bat maternity roost or hibernaculum is present, or a ring-tailed cat den is present, Mitigation Measures 4.7-9b and/or 4.7-9c will be		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
implemented. CDFG will also be notified of any active bat nurseries within the disturbance zones.			
4.7-9b If an active maternity roost or hibernaculum is found, the project will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the project cannot be redesigned to avoid removal of the structure, demolition of that structure will commence before bat maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). The disturbance-free buffer zones described above will be observed during the bat maternity roost season (March 1–July 31). If a non-breeding bat hibernaculum is found in a tree or structure to be razed, the individuals will be safely evicted, under the direction of a qualified bat biologist (as determined by a Memorandum of Understanding with CDFG), by opening the roosting area to allow air to flow through the cavity. Demolition will then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for air flow and the demolition). This action will allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.			
4.7-9c If an active ring-tailed cat nest is found, the project will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that tree will commence outside of the breeding season (February 1 to August 30). If a non-breeding den is found in a tree scheduled to be removed, the individuals will be safely evicted under the direction of a qualified biologist. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.			
Impact 4.7-11: Construction activities associated with the project could result in impacts to BLM and USFS sensitive species.			
Mitigation Measures 4.7-4a-c will reduce impacts to the little willow flycatcher to a less-than-significant level. Mitigation Measures 4.7-5a-d will reduce the impacts to the foothill yellow-legged frog to a less-than-significant level. Mitigation Measures 4.7-6a-d will reduce the impacts to the western pond turtle to a less-than-significant level. Mitigation measures 4.7-8a-c will reduce the impacts to the northern goshawk to a less-than-significant level, and Mitigation Measures 4.7-9a-b will reduce the impacts to special-status bat species to a less-than-significant level.		Reclamation (implementation)	
Impact 4.7-13: Implementation of the project could result in the spread of non-native and invasive plant species.			
4.7-13a When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed.		Reclamation (implementation)	
4.7-13b Preclude the use of rice straw in riparian areas.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.7-13c Limit any import or export of fill to materials to those that are known to be weed free.			
4.7-13d Ensure all construction equipment is thoroughly washed prior to entering the worksite. Equipment will be inspected to ensure that it is free of plant parts as well as soils, mud, or other debris that may carry weed seeds.			
4.7-13e Use a mix of native grasses, forbs, and non-persistent non-native species for seeding disturbed areas that are subject to infestation by non- native and invasive plant species. Where appropriate, a heavy application of mulch will be used to discourage introduction of these species. Use of planting plugs of native grass species may also be used to accelerate occupation of disturbed sites and increase the likelihood of reestablishing a self-sustaining population of native plant species.			
4.7-13f Within the first 3 to 5 years post-project, if it is determined that the project has caused non-native invasive vegetation to out-compete desired planted or native colonizing riparian vegetation, opportunities to control these non-native species will be considered. When implementing weed control techniques, the approach will consider using all available control methods known for a weed species.			
4.8 RECREATION			
Impact 4.8-1: Construction associated with the project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River.			
4.8-1a Reclamation shall provide precautionary signage to warn recreational users of the potential safety hazards associated with project construction activities. Signs and/or buoys shall be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Notification signs shall be posted at public river access areas within the project area managed by BLM, STNF, and DFG (e.g., Bucktail River Access, Steel Bridge Campground, Douglas City Campground, Indian Creek River Access, Junction City Campground). Additionally, public notification of Proposed Project construction activities and associated safety hazards shall be circulated in the local Trinity Journal newspaper prior to the onset of project construction.		Reclamation (implementation)	
4.8-1b Reclamation will repair and/or replace any facilities associated with Remaining Phase 1 or Phase 2 sites that are impacted by project activities. This measure would include installation of interpretive signage consistent with the requirements of the STNF and BLM. Preconstruction meetings between Reclamation and landowners/land managers will identify the amount of vegetative screening to be retained at each recreation site within the project area.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
Impact 4.8-2: Construction of the project could result in an increased safety risk to recreational users or resource damage to recreational lands within the project boundaries.			
Implementation of Mitigation Measures 4.8-1a-b, which provide precautionary signage and/or buoys adjacent to project boundaries and public notice at river access sites, would make this impact less than significant.		Reclamation (implementation)	
Impact 4.8-3: Construction activities associated with the project could lower the Trinity River's aesthetic values for recreationists by increasing turbidity levels in the Trinity River.			
4.8-3a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2007), is summarized below. • Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof. • Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity. • Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages would be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.			
4.8-3b To ensure that turbidity levels do not exceed the thresholds described above (4.8-3a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels. • If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.			
4.8-3c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of clean spawning-sized gravels from a local Trinity River basin source. Gravel will be processed to remove silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products.			
4.8-3d Reclamation will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All BMPs and sediment and erosion control devices will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be met during stockpiling of materials.			
4.8-3e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation or its contractor will implement the following protocols: • Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season. • Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out. • Disconnect and disperse flow paths, including roadside ditches that might otherwise deliver fine sediment to stream channels. • Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.10 CULTURAL RESOURCES			
Impact 4.10-2: Implementation of the Proposed Project could potentially result in disturbance of undiscovered prehistoric or historic resources.			
4.10-2a Prior to initiation of construction or ground-disturbing activities, all construction workers shall be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel shall be instructed that upon discovery of buried cultural resources, work within 50 feet of the find shall be halted and Reclamation's designated archaeologist shall be consulted. Once the find has been identified, Reclamation shall be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the Programmatic Agreement (PA) and in compliance with the National Historic Preservation Act (NHPA).		Reclamation (implementation)	
4.10-2b If human remains are encountered during construction on non- federal lands, work in that area must be halted and the Trinity County Coroner's Office shall be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) shall be notified within 24 hours of determination, as required by Public Resources Code, Section 5097. The NAHC shall notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains. If Native American human remains and associated items are discovered on federal lands, they will be treated according to provisions set forth in the Native American Protection and Repatriation Act (25 U.S.C. 3001) as well as Reclamation's Directives and Standards LND 02-01. If the find is determined to be a historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation shall be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.			
4.11 AIR QUALITY			
Impact 4.11-1: Construction activities associated with the project could result in an increase in fugitive dust and associated particulate matter (PM_{10} and $PM_{2.5}$) levels.			
4.11-1a Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate: • Inactive construction areas will be watered as needed to ensure dust control. • Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1–2 feet vertical distance between top of load and the trailer). • Excavation activities and other soil-disturbing activities will be conducted in phases to reduce		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion. • Watering (using equipment and/or manually) will be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust. • All paved access roads, parking areas, and staging areas will be swept (with water sweepers), as required by Reclamation. • Paved roads will be swept (with water sweepers) if visible soil material is carried onto adjacent private and public roads, as required by Reclamation. • All ground-disturbing activities with the potential to generate dust will be suspended when winds exceed 20 miles per hour, as directed by the North Coast Unified Air Quality Management District (NCUAQMD). • Reclamation or its contractor will designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. This person will also respond to citizen complaints.			
Impact 4.11-2: Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.			
4.11-2a Reclamation will comply with NCUAQMD Rule 104 (3.0) Particulate Matter. This compliance could occur through the use of portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).		Reclamation (implementation)	
Impact 4.11-3: Construction activities associated with the project and removal of vegetation could result in vegetative materials that managers will decide to burn.			
4.11-3a Vegetative piles to be burned will consist only of dried vegetative materials. Burn piles will be no larger than 10 feet in diameter. Field personnel will be on site during all hours of burning and materials necessary to extinguish fires will be available at all times.		Reclamation (implementation)	
4.11-3b In general, all requirements of a NCUAQMD “NON-Standard” burn permit will be met for burning. Burn management planning will include but not be limited to the following: • Ensure that burning occurs only on approved burn days as defined by the NCUAQMD (determined via calling 1-866-BURN-DAY). • Burning will only occur during suitable conditions to ensure control of ignited fires. For instance, water to wet the litter and duff layer and penetrate the mineral soil layer to 1/4 inch or more will be present, wind speeds will be low (<10 mph), and temperature will be low (<80 ºF). • Piles will be covered with a 5-foot x 5-foot sheet of 4-mil polyethylene plastic to promote drying of the slash. At least 3/4 of each pile surface will be covered and the plastic anchored to preserve a dry ignition point. Dry fuel conditions would minimize smoke emissions. • Slash piles will not be constructed on logs, stumps, on talus slopes, within 25 feet of wildlife trees with nest structures, in roadways or in drainage ditches. Piles will not be placed within			

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
10 feet of trees intended to be saved (reserved trees), or within 25 feet of a unit boundary.			
4.11-3c Reclamation will notify the public each day that burning is to occur. Signs or personnel will notify residents and traffic on nearby access routes.			
Impact 4.11-5: Construction activities would generate short-term and localized fugitive dust, gas and diesel emissions, and smoke that could affect adjacent residences and schools.			
4.11-5a Construction activity occurring within 300 feet of the Lewiston or Douglas City elementary schools will be limited to the period when school is not in session.		Reclamation (implementation)	
4.11-5b Construction activity occurring within 300 feet of residences will be limited to Monday through Saturday, from the hours of 9 a.m. to 5 p.m.			
4.11-5c Reclamation will notify residences within 300 feet of Phase 2 and Remaining Phase 1 project activity and the Lewiston, Douglas City, and Junction City elementary schools of construction activity located near the schools prior to site construction activities.			
4.11-5d Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation sites, which contains a phone number for the public to contact for concerns related to air quality.			
4.12 AESTHETICS			
Impact 4.12-1: Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.			
Mitigation Measures 4.7-1a-c (Vegetation, Wildlife, and Wetlands), which generally describes the Riparian Revegetation and Monitoring Plan that is required, will be implemented where applicable. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD. Visual impacts related to water quality (i.e., the potential for increased turbidity to adversely affect the aesthetic quality of the river) will be mitigated through implementation of mitigation measures 4.8-3a-f.		Reclamation (implementation)	
4.14 NOISE			
Impact 4.14-1: Construction activities associated with the project would result in noise impacts to nearby sensitive receptors.			
4.14-1a Construction activities near residential areas would be scheduled between 7:00 AM and 7:00 PM, Monday through Saturday. No construction activities will be scheduled for Sundays or other hours and days established by the local jurisdiction (i.e., Trinity County). The contractor may submit for variances in construction activity hours, as needed.		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
4.14-1b Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices.			
4.14-1c Reclamation will require placement of all stationary noise-generating equipment as far away as feasibly possible from sensitive noise receptors or in an orientation minimizing noise impacts (i.e., behind existing barriers, storage piles, unused equipment).			
4.15 PUBLIC SERVICES AND UTILITIES/ENERGY			
Impact 4.15-3: Implementation of the project could result in disruption to emergency services or disruption to school bus routes or student travel routes during construction activities.			
4.15-3a Reclamation will require that staging and construction work, including temporary road or bridge closures, occurs in a manner that allows for access by emergency service providers.		Reclamation (implementation)	
4.15-3b Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures.			
4.15-3c Reclamation will coordinate road closures occurring during the school year (mid-August through mid-June) with the appropriate school districts to avoid disruption of school attendance and student access to bus service.			
4.16 TRANSPORTATION/TRAFFIC CIRCULATION			
Impact 4.16-2: Construction activities would generate short-term increases in vehicle trips.			
4.16-2a Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that the gravel trucks maintain a speed limit of 15 mph on residential roads and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.			
Impact 4.16-3: Implementation of the project would obstruct access to adjacent land uses.			
4.16-3a Reclamation will maintain access throughout the construction period for all private residences adjacent to the project boundary and access roads adjacent to the Trinity River.			
4.16-3b During the construction phase of the project, Reclamation will limit the amount of daily construction equipment traffic by staging construction equipment and vehicles within the project boundary throughout the work period.		Reclamation (implementation)	
Impact 4.16-4: Construction activities would increase wear-and-tear on local roadways.			
4.16-4a Reclamation will perform a pre-construction survey of local federal, state, and private roads to determine the existing roadway conditions of the construction access routes; and will		Reclamation (implementation)	

Mitigation Measure	Timing/ Implementation	Responsible Parties (task)	Verification (date and initials)
consult with the relevant agencies/private parties about road conditions prior to construction activity and post construction activity. An agreement would be entered into prior to construction that would detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.			
Impact 4.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, or equestrians.			
4.16-5a Reclamation will prepare and implement a traffic control plan that would include provision and maintenance of temporary access through the construction zone, reduction in speed limits though the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians and equestrians from construction activities.		Reclamation (implementation)	

PROJECT DESIGN ELEMENTS

Project design elements are specific design features proposed by the project applicant and incorporated into the project to prevent the occurrence of, or reduce the significance of potential environmental effects. Because project design elements have been incorporated into the project, they do not constitute mitigation measures as defined by CEQA. However, project design elements are identified to ensure that they are included in the MMRP to be developed and implemented as part of the Proposed Project. The design elements discussed below are common to the Proposed Project. These elements are excerpted from Chapter 2 of the Draft Master EIR.

DESCRIPTION OF COMMON ACTIVITIES AND CONSTRUCTION CRITERIA AND METHODS

Common Activities

Vegetation Removal

Vegetation removal would involve the following:

- Remove vegetation to provide access to activity areas using a combination of manual labor and heavy equipment (i.e., chainsaw, excavator, and vegetation masticator).

- Remove stumps, roots, and vegetative matter to allow river scour on excavated floodplain surfaces. Some large woody debris would be retained for use in the floodplain to enhance fish habitat.

- Dispose of removed vegetation by chipping, hauling offsite, burning, burying within spoil areas as authorized by agencies or land owners, or other appropriate methods. Where authorized, Reclamation buries organic material to increase water holding capacity of alluvial and colluvial materials. Reclamation would continue to work with the Forest Service, BLM, local agencies and landowners to encourage the efficient use of chipping as a priority method of disposing of vegetative waste.

- Protect vegetation designated for preservation within clearing limits. Vegetation outside the clearing limits would be preserved and protected.

- Mechanically remove submerged roots from river fringe areas with ripping bars or excavator buckets. Equipment chassis (i.e., tires, tracks) would remain outside of the wetted portion of the river channel when removing submerged roots.

Water Use

Water would be used at all sites, in accordance with the following:

- Riparian water rights held by public and private landowners on the Trinity River would be used to obtain Trinity River water to support restoration. Dust abatement water would be obtained from onsite seep wells or the Trinity River. When drafting from the Trinity River, pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

In the event irrigation is necessary for revegetation efforts, the primary water source would be the Trinity River. Any surface water sources used for irrigation would be developed in order to comply with the water rights of land management agencies and landowners. Pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

Monitoring

The Record of Decision (ROD) provided a restoration strategy for the TRRP but did not identify methods for assessing the effectiveness of the management actions in achieving TRRP goals or management targets. Instead, it directed the TRRP to organize assessments around the principles of Adaptive Environmental Assessment and Management (AEAM) program and to use this to rigorously assess the river's response to management actions. The Integrated Assessment Plan (IAP) provides the basis for applying the AEAM principles outlined in the ROD.

These principles would be applied to quantitatively determine the overall status and trend of river system attributes relative to TRRP objectives, using appropriate data to describe each attribute, with data collected based upon scientifically defensible monitoring designs. The causal relationship between rehabilitation of the fluvial nature of the river and increasing salmonid production would be the major focal point for monitoring and modeling. The focus of the IAP is to identify key assessments that:

- Evaluate long-term progress toward achieving program goals and objectives; and
- Provide short-term feedback to improve program management actions by testing key hypotheses and reducing management uncertainties.

The IAP provides a general framework for integrating and linking assessments across monitoring domains. Integration of assessments would be essential for evaluating the TRRP's overall restoration strategy, involving coordinated actions to support multiple ecosystem processes and components. This integration allows development of coordinated sampling designs and assessments that serve multiple or complementary objectives, and is intended to improve the understanding of qualitative and quantitative functional relationships associated with the mainstem Trinity River.

The IAP framework focuses on six key elements; each of these would be integrated into the MMRP to ensure that authorized activities are consistent with the AEAM. Key elements of the IAP include:

1. Create and maintain spatially complex channel morphology.

2. Increase/improve habitats for freshwater life stages of anadromous fish to the extent necessary to meet or exceed production goals.

3. Restore and maintain natural production of anadromous fish populations.

4. Restore and sustain the natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels to facilitate dependent tribal, commercial, and sport fisheries' full participation in the benefits of restoration via enhanced harvest opportunities.

5. Establish and maintain riparian vegetation that supports fish and wildlife.

6. Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation.

Additional information on the IAP is available on the TRRP website: *http://www.trrp.net/science/IAP.htm*

Design Elements

Attachment 1 following the appendices in Volume IV of the 2009 Master EIR is a glossary of design and construction terms for use by the design team.

Hydraulics

The Proposed Project would occur in areas that the Federal Emergency Management Agency (FEMA) has designated as Special Hazard Zones AE and X, as described in Section 3.2 of this document. In the Zone AE areas, Reclamation has established a design criterion stating that not only would the County's floodplain ordinance be followed, but implementation of the Proposed Project would not increase the flood risk for the community. This criterion resulted in a stipulation that coarse sediment and excavated material would be strategically placed to ensure that 100-year flood elevations would not increase over current conditions. As previously described, the site boundaries generally conform to the river corridor, bounded by prominent geographic features such as roads and fences.

The design of the activity areas was based on an understanding of the relationships between the flow regime and the hydrologic/hydraulic characteristics of the action. A fundamental constraint was to *do nothing to increase the flood risk in the general vicinity, and to not raise the water surface elevation above the current FEMA estimated 100-year base flood elevation.* Evaluation of the Proposed Project requires comparing estimated seasonal base flows and estimated return-period flows. USACE's HEC-RAS hydraulic model would be used by the design team during final design activities to predict changes in flood elevations at various points along the project reach. Table F-2 lists the components of the flow regime, the seasonal or other periodic return intervals, and the flow rates that would be used during final design to ensure that the action meets the flood constraints described above.

Table F-2. Estimated Mainstem Trinity River Flow Conditions Used for Design

Flow Description	Flow Event	Flow Rate (cfs)
Summer base flow[a] (July 22 to October 15 of each year)	Q_s	450
1.5-year return interval design flow	$Q_{1.5}$	6,000
Estimated FEMA 100-year flow below Rush Creek	Q_{100}	19,300
Estimated FEMA 100-year flow below Grass Valley Creek	Q_{100}	23,600

a Base flow defined as cfs from TRD release and accretion flow
Q = flow rate; Q1.5 = 1.5 year return interval design flow; Q100 = 100-year flood flow; Qs = summer base flow

A HEC-RAS model for the Trinity River from Lewiston Dam to the North Fork Trinity River was developed by California Department of Water Resources (DWR) and provided to the TRRP as part of the administrative record. This model was calibrated to match measured water surface elevations (WSEs) in the Trinity River within and adjacent to the site boundaries for the design flow. Since WSEs have not been measured (validated) for the 100-year flow, the predicted WSEs are based on the output of the model using carefully selected Manning's "n" values that reflect the overbank conditions at each site. The

model incorporates empirical data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of the rehabilitation sites. To obtain WSEs for design flows, the model was calibrated using surveyed WSEs and known flows (from gage data). The model was determined to be accurate for the level of evaluation and design required.

There are several significant flow conditions that are important to the design of the Proposed Project. Two of the most important flow conditions are summertime low flows of about 450 cfs, which is the release from Lewiston Dam, and the 1.5-year-event (ordinary high water) flow of 6,000 cfs, as measured below Rush Creek. The design team regards the design flows shown in Table F-1 as the "best available information" per FEMA requirements. The FEMA Q_{100} "near Douglas City" (38,500 cfs) was established in the 1976 USACE report (USACE 1976) used by FEMA to develop the current FIRMs for the Trinity River. The 6,000 cfs 1.5-year event is based on the ROD flow release. This flow information provides the basis for the designs incorporated into the Proposed Project.

The HEC-RAS hydraulic model was developed and calibrated for the existing conditions to calculate the WSE at various flow releases. The calibration was based on water-surface profiles surveyed at low flow and water profiles and points surveyed at different flows, ranging from 4,500 cfs to 10,000 cfs releases from Lewiston Dam. After the model was properly calibrated, various WSEs were determined for the activity areas and used to develop the design topography. The illustrations at the end of this chapter portray the design topography concepts. The final designs would ensure that constructed surfaces are self-draining in order to minimize potential fish stranding.

Roadway Approaches

As an alternative to disposing of excavated materials onsite, materials may be hauled to commercially approved off-site locations. This option would reduce the impact of spoiling excavated materials in upland habitats. Hauling a portion of excavated materials generated under the Proposed Project could require substantial truck traffic to off-site locations. The traffic would be staged over the project duration, generally between August 1 and November 15. Traffic control measures would be applied in accordance with BLM, Trinity County, and Caltrans requirements.

Recreation Facilities

As appropriate, federal, state, county or private recreation facilities (e.g., parking areas, access trails, picnic areas) affected by project activities would be returned to the same level of service as those offered prior to project implementation. Reclamation, in consultation with the managers and owners of these facilities could enhance one or more of these facilities consistent with project objectives and in compliance with federal, state and county planning requirements. While the Forest Service and BLM have not identified any recreational enhancements, these agencies may require barricades along existing access routes to confine recreational traffic to the existing routes on federal lands.

Drainage

As appropriate, culverts or other drainage structures would be constructed at temporary stream crossings or cross-drainage channels to allow for unimpeded surface drainage.

Rights-of-Way/Easements

Prior to construction, formal realty agreements would be made between Reclamation; land managers for BLM, DWR, and CDFW; and private landowners whose property would be affected. These agreements would clarify the terms and conditions under which Reclamation would work on private property. In addition, these agreements would compensate landowners, based on fair market value of identified construction easements, and would hold property owners harmless during construction activities.

Utilities

There are a number of utility features located within and/or adjacent to the site boundaries. Water intakes, power and telephone poles, and water supply lines parallel or cross the Trinity River in a number of locations. These utilities are considered in the project design to ensure that service would not be disrupted.

Construction Criteria and Methods

Construction Process Overview

- Vegetation removal would occur as necessary and in compliance with all regulatory requirements. An expected August 1 start date for clearing and grubbing of vegetation would allow completion of nesting by avian species. Alternatively, vegetation may be removed prior to the start of the nesting season, which is early March for this area.

- Where available, existing roads (activity L) would be used to access the activity areas. New access roads and haul routes (activity M) would be constructed when necessary and restored to a stable condition in accordance with landowner/land manager requirements at the completion of the project.[1]

- Excavation would begin on the floodplain to bring it down to grade.

- When specified, finer grained materials (e.g., sand) excavated from riverine activity areas may be stockpiled for use at upland or other riverine activity areas.

- Any riverine treatment areas (e.g., constructed inundation surfaces) that have been compacted from construction activities would be ripped to a depth of approximately 18 inches; no ripping would occur under wet soil conditions. The furrows developed by this ripping would ensure that most storm water runoff is retained and filtered onsite so that there is little or no construction-related turbidity. This action would effectively control the release of storm water runoff and turbidity from the site and eliminate the need for use of post-construction sediment-control measures (e.g., silt fences, berms).

- The timing for work adjacent to the river may be affected by river flows. If for some reason the flow is low when construction starts, but it is anticipated that flows would increase before the floodplain can be excavated, excavation would occur at the lower elevations (adjacent to river) first and at the higher floodplain elevations last.

[1] Activity types L and M were included in the 2009 Master EIR, but do not apply to this project

- In-channel activities would generally take place during low flows (July 15 to September 15 as allowed by the coho salmon in-river work window in NMFS' 2000 Trinity River biological opinion) to create immediate point bars and allow mobilization of in-channel materials at high flows.

- Alcoves and side channels would be constructed from the existing grade down slope. Measures would be taken (e.g., sediment plug, sandbags) to isolate the work area from flowing water. If necessary, pumps would be used to dewater the excavation to inhibit any sediment from entering the river. Typically, reconnecting these features to the river relies on high-flow events. If necessary, the TRRP would remove materials used to isolate these side channels after they have been constructed.

- Final grading would occur as necessary for all activity areas.

- Demobilization of construction equipment and site clean-up would be accomplished consistent with Reclamation requirements.

- Revegetation would take place during wet conditions (fall/winter) and would generally occur in riparian areas to maximize use by fish and wildlife species. Projects would be designed and implemented to achieve no net loss in riparian vegetation (within the project site boundaries) from planting and natural revegetation consistent with the Draft Riparian Revegetation Plan.

In-River Construction

- Where necessary, heavy equipment would be used to grub tree and shrub roots from the edge of the river. Vegetation would often be maintained along the river's active channel to maintain the currently available low-water fish habitat. During root removal, equipment chassis would generally not enter the low-water river channel.

- In-river excavation would generally begin at the far edge of the activity area and work back toward the riverbank so that heavy equipment is on dry land or in shallow water.

- In-river materials or coffer dams may be used to temporarily redirect flow around work areas and to create platforms from which to work. In addition to providing the means for volitional fish passage (upstream and downstream), at least one navigable (by raft/boat) passage through the activity area would remain open at all times.

Traffic Control/Detour

Short-term traffic control is expected and would be in conformance with the following requirements established by the appropriate jurisdictional authority for mobilization and demobilization of heavy equipment or wide-load vehicles:

- Reclamation would coordinate with jurisdictional agencies to identify specific requirements that shall be included for use of existing roadways and haul routes. Requirements may include seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.

- Temporary construction access may be required; access routes shall be of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

Staging Areas

Staging areas and storage facilities for the Proposed Project are shown on Figure 2-1. These areas would be used throughout the duration of the project activities. Some short-term staging and equipment storage and parking would be needed in the activity areas as the project is implemented.

Air Pollution and Dust Control

Efforts would be made to minimize air pollution and reduce greenhouse gas emissions related to construction operations. Reclamation specifications require that the contractor comply with all applicable air pollution control rules, regulations, ordinances, and statutes. In addition, project contractors would be given educational material about fuel efficiency and the benefits of using vehicles powered by alternative energy sources to enhance awareness of global warming issues. Contractors would also be required to provide recycling bins for onsite waste materials.

Contract documents would also specify that the contractor would be responsible for limiting dust by watering construction site areas used by trucks and vehicles. If water is taken from the river, pump intakes would be in conformance with criteria established by NMFS and CDFW to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

Fire Protection and Prevention

Due to the high fire hazard and history of equipment-caused fires in Trinity County, construction contractors would be required to follow applicable regulations of Public Resource Code 4428-4442 during dry periods to minimize the potential for the initiation and spread of fires from the work site.

Water Pollution Prevention

Reclamation would implement water pollution control measures that conform to applicable and appropriate permits. Reclamation would require the contractor to use extreme care to prevent construction dirt, debris, storm water run-off, and miscellaneous byproducts from entering the stream. Some key water pollution control measures that would be implemented by Reclamation are listed below:

- Every reasonable precaution would be exercised and BMPs would be implemented to protect the Trinity River from being polluted by fuels, oils, petroleum byproducts, and other harmful materials and shall conduct and schedule operations to avoid or minimize muddying and silting of the river. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.

- Construction equipment would be cleaned of dirt and grease prior to any in-channel activities. All construction equipment would be inspected daily and maintained to ensure that fuel or lubricants do not contaminate the Trinity River. Spill containment kits would be onsite at all times and, where feasible, berms or other containment methods would be kept in place around the work areas when performing in-channel work.

- Water pollution control work is intended to provide prevention, control, and abatement of water pollution in the Trinity River, and would consist of constructing those facilities that may be shown on the plans, specified herein or in the special provisions, or directed by the Contracting Officer.

- Deep ripping (18”) of riparian areas that have been compacted during construction activity is expected to minimize or stop delivery of storm water runoff to the river. As necessary, Reclamation would provide temporary water pollution control measures, including, but not limited to, spill containment booms, dikes, basins, ditches, and straw and seed application, that may become necessary as a result of the contractor’s operations.

- Before starting any work on the project, Reclamation would develop an agency-approved SWPPP to effectively control water pollution during construction of the project. The SWPPP would show the schedule for the erosion control work included in the contract and for all water pollution control measures Reclamation proposes to take in connection with construction of the project to minimize the effects of the operations on adjacent streams and other bodies of water. Reclamation would not perform any clearing and grubbing or earthwork on the project until the SWPPP has been accepted by responsible agencies.

- Oily or greasy substances originating from Reclamation’s operations would not be allowed to enter, or be placed where they would later enter, a live stream, soil, or groundwater.

Appendix G – Aquatic Conservation Strategy Consistency Evaluation

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APPENDIX G

Trinity River Channel Rehabilitation Site: Chapman Phase B (River Mile 83.5–83.8) Aquatic Conservation Strategy Consistency Evaluation

INTRODUCTION

The Bureau of Reclamation (Reclamation), under the auspices of the Trinity River Restoration Program (TRRP), is the proponent for implementing a series of channel rehabilitation and sediment management activities throughout the 40-mile reach of the Trinity River below Lewiston Dam. This evaluation is for the Chapman Phase B site at (River Mile 83.5–83.8), as described in Chapter 2 of this EA/IS.

This document evaluates and determines the consistency of the TRRP activities with the Aquatic Conservation Strategy (ACS) in the 1994 Record of Decision (1994 ROD) for the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Related Species within the Range of the Northern Spotted Owl. The ACS was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The ROD amended the Redding Resource Management Plan (RMP) prepared by the Bureau of Land Management (BLM) in 1994 and is incorporated into the 1995 Shasta-Trinity National Forest Land and Resource Management Plan (STRNF LRMP).

The intent of this evaluation is to ensure that decision makers have the information necessary to determine whether the TRRP activities at the Chapman Phase B site are consistent with the ACS objectives. This evaluation incorporates information provided in the Mainstem Trinity River Watershed Analysis (U.S. Bureau of Land Management 1993), incorporates by reference the 2009 Master Environmental Impact Report prepared by Reclamation in cooperation with BLM, and other information in the administrative record to assist the decision maker. In order to make the finding that a project or management activity "meets" or "does not prevent attainment" of the ACS objectives, the decision maker must ensure that management actions that do not maintain the existing condition or lead to improved conditions in the long term would not be implemented.

The ACS states that species-specific strategies aimed at defining explicit standards for habitat elements would be insufficient for protecting even the targeted species. The intent of the ACS is to maintain and restore ecosystem health at watershed and landscape scales to protect habitat for fish and other riparian-dependent species and resources and to restore currently degraded habitats. This approach seeks to prevent further habitat degradation and restore habitat over broad landscapes as opposed to implementing individual projects or focusing on small watersheds. Because the ACS is based on natural disturbance processes, the 1994 ROD recognized that it is a long-term strategy that may take decades, and possibly more than a century, to accomplish all of its objectives.

The ACS contains four components: riparian reserves, key watersheds, watershed analysis, and watershed restoration. Each component is integral to improving the health of the aquatic ecosystems encompassed by the 1994 ROD. A detailed discussion of these components is provided in the ROD.

Attachment A of the 1994 ROD includes Standards and Guidelines (S&Gs) that were incorporated as management direction into the BLM Redding RMP and STNF LRMP to ensure compliance with the ROD. This hierarchy of land allocations is described below.

At some locations on NFS and BLM managed lands, land allocations overlap. Standards and Guidelines for Congressionally Reserved Areas must be met first. Second, Riparian Reserve S&Gs apply and are added to S&Gs of other designated areas (e.g., Late Successional Reserves (LSR), matrix). For example, where Riparian Reserves occur within LSRs, both sets of S&Gs apply. In all land allocations, S&Gs in current plans apply where they are more restrictive or provide greater benefits to late-successional forest related species. For this project, two land allocations are applicable to BLM and NFS lands. These are:

- **Riparian Reserves** – Trinity River and Carr Creek and related areas associated with their respective floodplains; and

- **Matrix** – The matrix consists of those federal lands not subject to another land allocation.

The activities proposed by Reclamation under the auspices of the TRRP are confined to a narrow corridor that parallels the Trinity River from Lewiston Dam downstream to Helena, California. This section of the Trinity River is both federally and state designated as a wild and scenic river. Riparian reserve and matrix designations are also used to classify lands within this corridor. This evaluation focuses on Riparian Reserves as defined in the Redding RMP and STNF LRMP.

The following sections of this evaluation address the consistency of the TRRP's Alternative 1 at the Chapman Phase B site as a single project with the four components of the ACS and the nine ACS objectives described in Attachment B to the 1994 ROD.

COMPONENTS OF THE AQUATIC CONSERVATION STRATEGY

Riparian Reserves

The project area contains Riparian Reserves, as defined in the BLM's Redding RMP and STNF LRMP. Watershed analyses have been completed by BLM and the Forest Service for federal lands within the Trinity River corridor; these analyses did not modify the designated widths of the Riparian Reserves established in the 1994 ROD established by the S&Gs. The width of the riparian reserves essentially correlates with the floodplain of the Trinity River, as well as a buffer around riparian features identified during the wetland delineation process within the project area defined for the Chapman Phase B site. Table G-1 at the end of this appendix shows the S&Gs that were integrated into the project.

Key Watersheds

There are no key watersheds within or downstream of the 40-mile reach of the Trinity River downstream of Lewiston Dam, although the Forest Service does manage key watersheds in the upper Trinity River watershed, primarily associated with the Salmon-Trinity Alps Wilderness Area. This component of the ACS is therefore not applicable to the activities proposed by the TRRP in the Chapman Phase B EA/IS.

Watershed Analysis

The BLM conducted watershed analyses for the lands within the Trinity River corridor. These analyses did not identify specific recommendations regarding the riparian reserve widths; therefore, the S&Gs established under the ACS are applicable to this project. Any activities proposed within these riparian reserves will conform to the site-specific conditions established in the S&Gs to ensure consistency with the ACS.

Watershed Restoration

By its nature, the project is a comprehensive ecosystem restoration project intended to restore the physical processes and biological resources of the mainstem Trinity River. While some short-term impacts may occur to riparian-dependent species, the scale of the activities proposed by the TRRP, including this project, ensures that restoration of ecological processes and functions will be consistent with the ACS.

Aquatic Conservation Strategy Objectives

The following section evaluates the consistency of Alternative 1 with the nine ACS objectives listed in Attachment B of the ROD.

The lands managed by the Forest Service and BLM within the range of the northern spotted owl will be managed to:

1. *Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.*

The project by its nature is intended to restore the landscape processes, specifically the alluvial and riparian functions, that have been impaired by construction of the Trinity River Division of the Central Valley Project. The activities that are proposed on federal lands subject to the ACS are an integral part of the larger project and are intended to assist BLM and Forest Service in attaining this ACS objective.

2. *Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.*

The project area defined in Figure 2-1 of the EA/IS for the Chapman Phase B site ensures that project activities are implemented in a manner that complements the functional values offered by the Trinity River between Lewiston and Helena. The TRRP, in cooperation with BLM and the Forest Service has been involved in the identification and prioritization of channel rehabilitation sites for a number of years. This project has been designed to acknowledge the interrelationship between aquatic and riparian habitats that occur throughout this reach. Specifically, this project includes a number of activities to enhance the connectivity of aquatic and riparian habitat in the general vicinity of the project area consistent with the overall objectives of the TRRP for the 40-mile reach of the Trinity River downstream of Lewiston Dam. Modifications of floodplains, removal of grade control structures, construction of functional side-channel and off-channel habitat, and augmentation of spawning gravel are examples of restoring connectivity for a variety of aquatic and riparian-dependent species. The intent of this project is to assist the BLM and the Forest Service in attaining this ACS objective.

3. *Maintain and restore the physical integrity of the aquatic system, including shorelines, banks and bottom configurations.*

A fundamental component of the project is the activities intended to restore the bed, banks, and floodplain of the Trinity River. The modification of grade control, expansion of functional floodplain habitat, construction of side channels, efforts to enhance the coarse sediment supply, and placement of large wood and boulders that provide refugia habitat are examples of the activities intended to restore the physical integrity of the aquatic system. Collectively, these efforts are designed to restore the alluvial habitat and associated riparian character of the Trinity River, which was impaired by reductions in flow and sediment upstream. The intent of this project is to assist the BLM and the Forest Service in attaining this ACS objective.

4. *Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.*

By its nature, the project will require removal of vegetation and extensive grading activities, including construction within the active channel of the Trinity River. In 2015, the North Coast Regional Water Quality Control Board (Regional Water Board) reissued three General Permits to the TRRP that provide authorization for channel rehabilitation, fine sediment management, and coarse sediment management activities under Section 401 of the Clean Water Act (CWA). As co-lead agency, BLM and the Forest Service (as a cooperating agency) have also worked closely with the TRRP to ensure that Best Management Practices are incorporated into the project description as environmental commitments to minimize effects on water quality. Compliance with conditions established by the U.S. Army Corps of Engineers (USACE) consistent with the requirements of Nationwide Permit 27 will ensure compliance with Section 404 of the CWA. As proposed, this project would be consistent with the requirements of the Regional Water Board, the BLM's Redding RMP and the STNF LRMP; it would therefore not prevent attainment of this ACS objective.

5. *Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.*

A fundamental element of the TRRP is restoration of the sediment regime in a manner that enhances the alluvial character of the 40-mile reach of the Trinity River downstream of Lewiston Dam. The Chapman Phase B project would ensure that the coarse sediment fraction of the sediment regime will be replenished on an ongoing basis, consistent with the timing, volume, and rates appropriate for the scaled-down channel. The inclusion of large wood and boulder clusters also increases the functional benefits of gravel augmentation. While there may be a change in the timing or volume of sediment input, overall the project is intended to assist BLM and the Forest Service in attainment of this ACS objective.

6. *Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*

Alternative 1 will not influence any in-stream flows. No modifications to the flow regime of the Trinity River or its tributaries are proposed; therefore, this ACS objective would be met.

7. *Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.*

The activities to modify the bed, banks, and floodplains of the Trinity River within the project boundary are designed to maintain and/or restore the hydrologic connection between the river and adjacent wetland/riparian habitat. By reducing the floodplain elevations, the current flow regime could provide additional opportunities to establish functional, connected wetland habitat adjacent to the Trinity River. This project would be consistent with this ACS objective.

8. *Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.*

A fundamental objective of the TRRP is to restore the species composition and structural diversity of native plant communities that occur along the mainstem Trinity River. The modifications proposed to the active channel, floodplain, and upland activity areas within the boundaries of the Chapman Phase B site will provide conditions that are receptive to the reintroduction of a diverse assemblage of native riparian vegetation and reduce the potential for non-native, invasive, and noxious plant species. Woody material of various size classes removed as part of the rehabilitation activities will be incorporated into the project as appropriate. Placement of large wood within and/or adjacent to constructed alluvial features will enhance channel complexity and edge habitat. Onsite mulching of vegetative debris will provide effective ground cover and increase successful revegetation efforts. Overall, this natural recruitment of riparian communities, supplemented by riparian planting efforts, will ensure that this project meets this ACS objective.

9. *Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.*

A fundamental objective of the TRRP is to restore the aquatic, riparian, and upland habitat along the 40-mile reach of the mainstem Trinity River. The project activities emphasize creation and/or rehabilitation of aquatic and riparian habitat within the boundaries of the Chapman Phase B site. Collectively, these activities are intended to generate geomorphic responses downstream that will further the overall habitat enhancement objectives by reestablishing the alluvial processes that were impaired by the construction and operation of the Trinity River Division. The activities that are proposed on federal lands subject to the ACS are an integral part of the overall objective of the TRRP and are intended to assist BLM in attaining this ACS objective.

Conclusion

Based on this evaluation, BLM and the Forest Service finds that the project described in the NEPA decision document has been designed and would be constructed in a manner that does not prevent future attainment of the ACS objectives. The management actions incorporated into Alternative 1 will maintain the existing condition or lead to improved conditions in the long term, consistent with the intent of the ACS.

Table G-1. Riparian Reserves Applicable Standards and Guidelines

Resource	S&G #	Standard and Guideline
All Land Allocations		
Survey and Manage	2	Survey prior to ground disturbing activities. (Surveys not required as discussed in Appendix H.)
Riparian Reserves		
Timber Management	TM 1-c	Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquired desired vegetation characteristics needed to attain ACS objectives.
Roads Management	RF-1	Federal, state, and county agencies should cooperate to achieve consistency in road design, operation, and maintenance necessary to attain Aquatic Conservation Strategy objectives.
	RF-2	For each existing or planned road, meet Aquatic Conservation Strategy objectives by:
	RF-2a	Minimizing road and landing locations in Riparian Reserves.
	RF-2b	Completing watershed analyses (including appropriate geotechnical analyses) prior to construction of new roads or landings in Riparian Reserves.
	RF-2c	Preparing road design criteria, elements, and standards that govern construction and reconstruction.
	RF-2d	Preparing operation and maintenance criteria that govern road operation, maintenance, and management.
	RF-2e	Minimizing disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow.
	RF-2f	Restricting sidecasting as necessary to prevent the introduction of sediment to streams.
	RF-3	Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:
	RF-3a	Reconstructing roads and associated drainage features that pose a substantial risk.
	RF-3b	Prioritizing reconstruction based on current and potential impact to riparian resources and the ecological value of the riparian resources affected.
	RF-3c	Closing and stabilizing or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.

Resource	S&G #	Standard and Guideline
	RF-4	New culverts, bridges and other stream crossings shall be constructed, and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved, to accommodate at least the 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
	RF-5	Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is unfeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.
	RF-7	Develop and implement a Road Management Plan or a Transportation Management Plan that will meet the Aquatic Conservation Strategy objectives. As a minimum, this plan shall include provisions for the following activities:
	RF-7a	Inspections and maintenance during storm events.
	RF-7b	Inspections and maintenance after storm events.
	RF-7c	Road operation and maintenance, giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian resources.
	RF-7d	Traffic regulation during wet periods to prevent damage to riparian resources.
	RF-7e	Establish the purpose of each road by developing the Road Management Objective.
Recreation Management	RM-1	New recreational facilities within Riparian Reserves, including trails and dispersed sites, should be designed to not prevent meeting Aquatic Conservation Strategy objectives. Construction of these facilities should not prevent future attainment of these objectives. For existing recreation facilities within Riparian Reserves, evaluate and mitigate impact to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy objectives.
	LH-3	Locate new support facilities outside Riparian Reserves. For existing support facilities inside Riparian Reserves that are essential to proper management, provide recommendations to FERC that ensure Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, provide recommendations to FERC that such support facilities should be relocated. Existing support facilities that must be located in the Riparian Reserves will be located, operated, and maintained with an emphasis to eliminate adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives.
	LH-4	For activities other than surface water developments, issue leases, permits, rights-of-way, and easements to avoid adverse effects that retard or prevent attainment of Aquatic Conservation Strategy objectives. Adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that retard or prevent the attainment of Aquatic Conservation Strategy objectives. If adjustments are not effective, eliminate the activity. Priority for modifying existing leases, permits, rights-of-way and easements will be based on the actual or potential impact and the ecological value of the riparian resources affected.

Resource	S&G #	Standard and Guideline
General Riparian Area Management	RA-2	Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees onsite when needed to meet coarse woody debris objectives.
	RA-3	Herbicides, insecticides, and other toxicants, and other chemicals shall be applied only in a manner that avoids impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives.

REFERENCES

Shasta-Trinity National Forest. 2005. Upper Trinity River Watershed Analysis. USDA Forest Service, Shasta-Trinity National Forest.

U.S. Bureau of Land Management. 1995. Mainstem Trinity River Watershed Analysis.

U.S. Bureau of Land Management. 1993. Redding Resource Management Plan and Record of Decision.

Appendix H – Compliance with Standards and Guidelines for Survey and Manage Species

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APPENDIX H

Trinity River Channel Rehabilitation Site: Chapman Phase B (River Mile 83.5–83.8) Compliance with Standards and Guidelines for Survey and Manage Species

The Trinity River Channel Rehabilitation Site: Chapman Phase B (River Mile 83.5–83.8) project is consistent with court orders relating to the Survey and Manage mitigation measure of the Northwest Forest Plan, as incorporated into BLM's 1993 Redding Resource Management Plan and the 1995 Shasta-Trinity National Forest LRMP.

On December 17, 2009, the U.S. District Court for the Western District of Washington issued an order in *Conservation Northwest, et al. v. Rey*, No. 08-1067 (W.D. Wash.) (Coughenour, J.), granting Plaintiffs' motion for partial summary judgment and finding a variety of NEPA violations in the BLM and USFS 2007 ROD eliminating the Survey and Manage mitigation measure. Judge Coughenour deferred issuing a remedy in his December 17, 2009, order until further proceedings and did not enjoin the BLM from proceeding with projects. Plaintiffs and Defendants entered into settlement negotiations that resulted in the 2011 Survey and Manage Settlement Agreement, adopted by the District Court on July 6, 2011.

The Ninth Circuit Court of Appeals issued an opinion on April 25, 2013, that reversed the District Court for the Western District of Washington's approval of the 2011 Survey and Manage Settlement Agreement. The case is now remanded back to the District Court for further proceedings. This means that the December 17, 2009, District Court order which found NEPA inadequacies in the 2007 analysis and records of decision removing Survey and Manage is still valid.

Previously, in 2006, the District Court (Judge Pechman) had invalidated the agencies' 2004 RODs eliminating Survey and Manage due to NEPA violations. Following the District Court's 2006 ruling, parties to the litigation had entered into a stipulation exempting certain categories of activities from the Survey and Manage standard (hereinafter "Pechman exemptions").

Judge Pechman's Order from October 11, 2006 directs: "Defendants shall not authorize, allow, or permit to continue any logging or other ground-disturbing activities on projects to which the 2004 ROD applied unless such activities are in compliance with the 2001 ROD (as the 2001 ROD was amended or modified as of March 21, 2004), except that this order will not apply to:

A. Thinning projects in stands younger than 80 years old;

B. Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned;

C. Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions; and

D. The portions of project involving hazardous fuel treatments where prescribed fire is applied.

Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and management requirements except for thinning of stands younger than 80 years old under subparagraph a. of this paragraph."

Following the District Court's December 17, 2009 ruling, the Pechman exemptions still remained in place. The BLM and Forest Service have reviewed the EA/IS for the Chapman Phase B site in consideration of both the December 17, 2009 partial summary judgment and Judge Pechman's October 11, 2006 order. Because this site is the focus of a riparian and stream improvement project where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions, the BLM and the Forest Service have made the determination that this project meets Exemption C of the Pechman Exemptions (October 11, 2006 Order), and therefore may still proceed even if the District Court sets aside or otherwise enjoins use of the 2007 Survey and Manage ROD since the Pechman exemptions would remain valid in such case.

Appendix I – Shasta-Trinity National Forest Sensitive Species List

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APPENDIX I

Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile 83.5–83.8) Shasta-Trinity National Forest and Bureau of Land Management Redding Field Office Sensitive Species Lists

Table I-1. Sensitive Fish and Wildlife Species, Shasta-Trinity National Forest (Updated September 2013) and Bureau of Land Management (BLM) Redding Field Office (Updated February 2018)

Scientific Name	Common Name	Status	Assessment[1]
BIRDS			
Accipiter gentilis	Northern goshawk	BLM	Marginal habitat for this species occurs within the project (ESL)[2], however it is very unlikely that it would occur because high quality habitat is present within 10 miles of the project ESL; environmental commitment EC-VW-7 would ensure that this species would be protected if present.
Agelaius tricolor	Tricolored blackbird	BLM	Habitat for this species does not occur within the project ESL.
Aquila chrysaetos	Golden eagle	BLM	Foraging habitat for this species occurs within the project ESL, but nesting habitat does not. Occurrences are known in the project ESL vicinity. Environmental commitment EC-VW-3 would ensure that this species would be protected.
Athene cunicularia	Burrowing owl	BLM	Habitat for this species does not occur within the project ESL.
Buteo swainsoni	Swainson's hawk	BLM	Habitat for this species does not occur within the project ESL.
Empidonax traillii	Willow flycatcher	USFS	Habitat for this species occurs within the project ESL; environmental commitment EC-VW-6 would ensure that this species would be protected.
Grus canadensis tabida	Greater sandhill crane	BLM	Habitat for this species does not occur within the project ESL.
Haliaeetus leucocephalus	Bald eagle (BLM)	BLM	Habitat for this species occurs within 1/4 mile of the project ESL and occurrences are known along the Trinity River corridor; environmental commitment EC- VW-7 would ensure that this species would be protected.

1 A full description of all environmental commitments (ECs), incorporated as design features as defined under NEPA will be implemented in accordance with a project-specific mitigation monitoring and reporting program (MMRP, Appendix F). The environmental commitments are fully described in Appendix E of the EA/IS.

2 The Environmental Study Limit, or ESL, is the anticipated geographic limit of project activities with a buffer applied for the purposes of resource identification and associated impact analyses. In addition to in-river rehabilitation/construction areas, these project activities include upland work areas, contractor use (i.e. staging) areas, unpaved access routes, and locations of pre-construction vegetation removal and other disturbances necessary to facilitate work activities. The buffer is sized as determined appropriate for local conditions, based on data (e.g. wetland habitat and wildlife surveys, information from previously-prepared cultural resource inventory reports, etc.) available at the time of its development.

Scientific Name	Common Name	Status	Assessment[1]
Riparia riparia ssp. riparia	Bank swallow	BLM	Habitat for this species does not occur within the project ESL.
Strix occidentalis caurina	Northern spotted owl	BLM	Habitat for this species does not occur within the project ESL.
Strix occidentalis occidentalis	California spotted owl	BLM	Habitat for this species does not occur within the project ESL.
MAMMALS			
Antrozous pallidus	Pallid bat (BLM)	BLM	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-8 would ensure that this species would be protected.
Corynorhinus townsendii	Townsend's big-eared bat	BLM	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-8 would ensure that this species would be protected.
Euderma maculatum	Spotted bat	BLM	Nesting habitat for this species does not occur within the project ESL; however foraging habitat may occur. Environmental commitment EC-VW-8 would ensure that this species would be protected.
Eumops perotis californicus	Western mastiff-bat	BLM	Habitat for this species does not occur within the project ESL.
Gulo gulo luscus	North American wolverine	USFS	Habitat for this species does not occur within the project ESL.
Martes caurina	Pacific marten	BLM	Habitat for this species does not occur within the project ESL.
Myotis evotis	Long-eared myotis	BLM	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-8 would ensure that this species would be protected.
Myotis thysanodes	Fringed myotis	BLM	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-8 would ensure that this species would be protected.
Myotis yumanensis	Yuma myotis	BLM	Habitat for this species does not occur within the project ESL.
Pekania pennanti (pacifica)	Pacific fisher	BLM	This species is known to occur within one-mile of the project ESL. Transitory/matrix habitat for this species could occur within the project ESL.

Scientific Name	Common Name	Status	Assessment[1]
AMPHIBIANS			
Hydromantes shastae	Shasta salamander	BLM, USFS	Habitat for this species does not occur within the project ESL.
Rana aurora aurora	Northern red-legged frog	USFS	Habitat for this species does not occur within the project ESL.
Rana boylii	Foothill yellow-legged frog	BLM, USFS	This species is known to occur within one-mile of the project ESL. Habitat for this species could occur within the project ESL; environmental commitment EC-VW-4 would ensure that this species would be protected.
Rana cascadae	Cascade frog	USFS	Habitat for this species does not occur within the project ESL.
Rhyacotriton variegatus	Southern torrent salamander	USFS	Habitat for this species does not occur within the project ESL.
Spea hammondii	Western spadefoot	BLM	Habitat for this species does not occur within the project ESL.
REPTILES			
Emys marmorata	Western pond turtle	BLM, USFS	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-5 would ensure that this species would be protected.
Lampropeitis zonata	California mountain kingsnake	BLM	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-5 would ensure that this species would be protected.
INVERTEBRATES, TERRESTRIAL			
Ancotrema voyanum	Hooded lancetooth	BLM	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-10 would ensure that this species would be protected.
Bombus occidentalis	Western bumble bee	USFS	Habitat for this species does not occur within the project ESL.
Helminthoglypta hertleini	Oregon shoulderband	BLM	Habitat for this species does not occur within the project ESL.
Helminthoglypta talmadgei	Trinity shoulderband	BLM	Habitat for this species could occur within the project ESL, and is known to occur at several locations within 5-miles downstream of the project ESL; environmental commitment EC-VW-10 would ensure that this species would be protected.
Monadenia chaceana	Siskiyou (Chace) shoulderband	BLM	Habitat for this species does not occur within the project ESL.
Monadenia troglodytes troglodytes	Shasta sideband snail	USFS	Habitat for this species does not occur within the project ESL.
Monadenia troglodytes wintu	Wintu sideband snail	USFS	Habitat for this species does not occur within the project ESL.
Trilobopsis roperi	Shasta chaparral snail	USFS	Habitat for this species does not occur within the project ESL.
Trilobopsis tehamana	Tehama chaparral snail	BLM, USFS	Habitat for this species does not occur within the project ESL.

Scientific Name	Common Name	Status	Assessment[1]
Vespericola shasta	Shasta hesperian snail	USFS	Habitat for this species does not occur within the project ESL.
INVERTEBRATES, AQUATIC - MOLLUSKS			
Anodonta californiensis	California floater (freshwater mussel)	BLM, USFS	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-10 would ensure that this species would be protected.
Anodonta oregonensis	Oregon floater	BLM	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-10 would ensure that this species would be protected.
Fluminicola seminalis	Nugget pebblesnail	USFS	Habitat for this species does not occur within the project ESL.
Gonidea angulata	Western ridged mussel	BLM	Habitat for this species could occur within the project ESL; environmental commitment EC-VW-10 would ensure that this species would be protected.
Juga (*Calibasis*) *occata*	Scalloped juga (snail)	USFS	Habitat for this species does not occur within the project ESL.
Juga nigrina	Black juga (snail)	USFS	Habitat for this species does not occur within the project ESL.
Lanx patelloides	Kneecap lanx (limpet)	USFS	Habitat for this species does not occur within the project ESL.
Pisidium (*Cyclocalyx*) *ultramontanum*	Montane peaclam	USFS	Habitat for this species does not occur within the project ESL.
FISHES			
Cottus asperrimus	Rough sculpin	BLM	Habitat for this species occurs within the project ESL; the primary objective of the project is to enhance habitat for anadromous species, including Pacific lamprey.
Entosphenus tridentatus	Pacific lamprey	BLM, USFS	Habitat for this species occurs within the project ESL; the primary objective of the project is to enhance habitat for anadromous species, including Pacific lamprey.
Mylopharodon conocephalus	Hardhead	USFS	Habitat for this species does not occur within the project ESL.
Oncorhynchus mykiss	Steelhead - Klamath Mountains Province ESU	BLM, USFS	Habitat for this species occurs within the project ESL; the primary objective of the project is to enhance habitat for anadromous species, including steelhead.
Oncorhynchus mykiss pop 7	McCloud River redband trout	USFS	Habitat for this species does not occur within the project ESL.
Oncorhynchus tshawytscha	Upper Klamath-Trinity chinook ESU	BLM, USFS	Habitat for this species occurs within the project ESL; the primary objective of the project is to enhance habitat for anadromous species, including chinook salmon.

Note: Common names may not always meet official standards used by various scientific organizations but have been edited for document consistency. Only the first letter of the common name has been capitalized unless referring to a personal or geographic name.

DPS = Distinct Population Segment
ESU = Evolutionarily Significant Unit
SONCC = Southern Oregon/ Northern California Coast
BLM = Bureau of Land Management – Sensitive Species, Redding Field Office

Table I-2. Sensitive Plant Species, Shasta-Trinity National Forest (Updated September 2013) and Bureau of Land Management (BLM) Redding Field Office (Updated January 2020)

Common Name *Scientific Name*	Status[1]	General Habitat Description and Blooming Period	Habitat Suitability Assessment[3]
Vascular plants/lichen/bryophytes			
Bent flowered fiddleneck *Amsinckia lunaris*	BLMS/1B.2	Grassland slopes, foothill woodland slopes and occasionally cut/fill slopes. Elevation: 160-2600 feet. Bloom: Mar-Jun.	Not known to occur in Trinity County; Known from adjacent Humboldt County on the Van Duzen River. Project ESL contains suitable habitat.
McDonald's rockcress *Arabis mcdonaldiana*	FE/CE/1B.1	Lower montane coniferous forest, Upper montane coniferous forest. Elevation: 440-5905 feet. Bloom: May-Jul.	Not known to occur in Trinity County; Nearest Humboldt County records are limited to serpentine substrate. Project ESL does not contain suitable habitat.
Konocti manzanita *Arctostaphylos manzanita* ssp. *elegans*	None/None/1B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest. Elevation: 1295-5300 feet. Bloom: (Jan)Mar-May(Jul).	Project ESL is outside the known distribution of this subspecies. Project ESL contains suitable habitat.
Shasta County arnica *Arnica venosa*	USFS_S/None/4.2	Cismontane woodland, Lower montane coniferous forest; often disturbed. Elevation: 1095-4890 feet. Bloom: May-Jul(Sep).	Populations are known NE and SW of project ESL, but beyond 10-mile buffer. Project ESL contains suitable habitat.
Indian Valley brodiaea *Brodiaea rosea*	None/CE/1B.1	Closed-cone coniferous forest, Chaparral, Cismontane woodland, Valley and foothill grassland. Elevation: 1095-4755 feet. Bloom: May-Jun.	Nearby known population at Trinity Lake is outside 10-mile project buffer. Project ESL contains suitable habitat.
Bug-on-a-stick *Buxbaumia viridis*	BLMS/USFS_S/2.2	Large diameter coarse woody debris in advanced decay stage and inserted directly in perennially wet seeps or streams; riparian habitat in conifer forest. Any elevation below subalpine.	Single occurrence within 10-mile project buffer but over five miles from project. Project ESL contains suitable habitat.
Flagella-like atractylocarpus *Campylopodiella stenocarpa*	None/None/2B.2	Cismontane woodland. Elevation: 325-1640 feet.	Occurrences within 10-mile project buffer but over five miles from project. Project ESL contains suitable habitat.
Bristle-stalked sedge *Carex leptalea*	None/None/2B.2	Bogs and fens, Meadows and seeps (mesic), Marshes and swamps. Elevation: 0-2295 feet. Bloom: Mar-Jul.	Meadows in project ESL are not mesic enough to support this species. Project ESL does not contain suitable habitat.

3 EC-VW-2, which would require the any area where disturbance is to occur to be surveyed before ground disturbing activities commence and protective measures implemented for all sensitive plant species, would reduce or eliminate impacts to sensitive plant species from project activities. A full description of EC-VW-2 can be found in Appendix E of the EA/IS.

Common Name ***Scientific Name***	**Status[1]**	**General Habitat Description and Blooming Period**	**Habitat Suitability Assessment[3]**
Shasta chaenactis *Chaenactis suffrutescens*	BLMS/None/1B.3	Serpentine soils in montane mixed conifer forest, including road cuts. Elevation: 4000 feet. Bloom: Jul.	Limited to serpentine substrate. Project ESL does not contain suitable habitat.
Northern clarkia *Clarkia borealis* ssp. *borealis*	BLMS/USFS_S/None/1B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest. Elevation: 1310-5135 feet. Bloom: Jun-Sep.	Project ESL is located beyond the western distribution of this species. Project ESL contains marginal habitat.
Clustered lady's-slipper *Cypripedium fasciculatum*	BLMS/USFS_S/ None/4.2	Lower montane coniferous forest, North Coast coniferous forest. Elevation: 325-7990 feet. Bloom: Mar-Aug.	Nearby occurrences are probably within 5 miles but exact localities are not known. Project ESL contains suitable habitat.
Mountain lady's-slipper *Cypripedium montanum*	BLMS/USFS_S/ None/4.2	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, North Coast coniferous forest. Elevation: 605-7300 feet. Bloom: Mar-Aug.	Nearby occurrences are probably within 5 miles but exact localities are not known. Project ESL contains suitable habitat.
Oregon fireweed *Epilobium oreganum*	BLMS/USFS_S/None/1B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest. Elevation: 1640-7350 feet. Bloom: Jun-Sep.	Known population about 9 miles SE of project ESL. Meadows in project ESL are not mesic enough to support this species. Project ESL does not contain suitable habitat.
Tracy's eriastrum *Eriastrum tracyi*	USFS_S/CR/3.2	Chaparral, Cismontane woodland, Valley and foothill grassland. Elevation: 1030-5840 feet. Bloom: May-Jul.	Trinity County populations fall outside 10-mile project buffer. Project ESL contains suitable habitat.
Pink-margined monkeyflower *Erythranthe trinitiensis*	None/None/1B.3	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest; limited to serpentine substrate. Elevation: 1310-7495 feet. Bloom: Jun-Jul(Aug).	Limited to serpentine substrate. Project ESL does not contain suitable habitat.
California globe mallow *Iliamna latibracteata*	None/None/1B.2	Chaparral (montane), Lower montane coniferous forest, North Coast coniferous forest (mesic), Riparian scrub (streambanks). Elevation: 195-6560 feet. Bloom: Jun-Aug.	Project ESL is located beyond the eastern distribution of this species. Project ESL does not contain suitable habitat.
Dudley's rush *Juncus dudleyi*	None/None/2B.3	Lower montane coniferous forest (mesic). Elevation: 1490-6560 feet. Bloom: Jul-Aug.	Nearby occurrences are NE and SE of project ESL within 5 miles. Project ESL contains suitable habitat.

Common Name ***Scientific Name***	**Status**[1]	**General Habitat Description and Blooming Period**	**Habitat Suitability Assessment**[3]
Heckner's lewisia *Lewisia cotyledon* var. *heckneri*	BLMS/None/1B.2	Lower montane coniferous forest (rocky). Elevation: 735-6890 feet. Bloom: May-Jul.	Occurrence nearby 4 miles to NE of project ESL. Project ESL contains suitable habitat.
Copper moss *Mielichhoferia elongata*	USFS_S	Seasonally moist seeps in rock outcrops containing copper or heavy metals. Roadcuts. Below 3600 feet.	Nearby occurrences are probably within 10 miles but exact localities are not known. Project ESL contains marginal habitat.
Wolf's evening-primrose *Oenothera wolfii*	None/None/1B.1	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest, gravel bars. Elevation: 5-2625 feet. Bloom: May-Oct.	The only known occurrence within 10 miles of project ESL is historical. Project ESL contains suitable habitat.
White-flowered rein orchid *Piperia candida*	None/None/1B.2	Broadleaf upland forest, Lower montane coniferous forest, North Coast coniferous forest. Elevation: 95-4300 feet. Bloom: (Mar)May-Sep.	Project ESL is located at the eastern distribution of this species. Project ESL contains suitable habitat.
White beaked-rush *Rhynchospora alba*	None/None/2B.2	Bogs and fens, Meadows and seeps, Marshes and swamps (freshwater). Elevation: 195-6695 feet. Bloom: Jun-Aug.	Meadows in project ESL are not mesic enough to support this species. Project ESL does not contain suitable habitat.
Brownish beaked-rush *Rhynchospora capitellata*	None/None/2B.2	Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Upper montane coniferous forest. Elevation: 145-6560 feet. Bloom: Jul-Aug.	Meadows in project ESL are not mesic enough to support this species. Project ESL does not contain suitable habitat.
Canyon Creek stonecrop *Sedum obtusatum* ssp. *paradisum*	BLMS/USFS_S/None/1B.3	Broadleaf upland forest, Chaparral, Lower montane coniferous forest, Subalpine coniferous forest. Elevation: 980-6235 feet. Bloom: May-Jun.	Occurrences within 10 miles of project ESL to the W and NE. Project ESL contains suitable habitat.
Coast checkerbloom *Sidalcea oregana* ssp. *eximia*	None/None/1B.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest. Elevation: 15-4395 feet. Bloom: Jun-Aug.	Project ESL is located beyond the eastern distribution of this species. Project ESL does not contain suitable habitat.
Klamath Mtns catchfly *Silene salmonacea*	USFS_S/None/1B.2	Serpentine or iron-rich soils in natural or early- seral gaps in mid to late-seral mixed conifer or mixed conifer-oak forest, including road cuts. Elevation: 2500-3800 feet. Bloom: June	Trinity County populations fall outside 10-mile project buffer mostly on serpentine soils. Project ESL does not contain suitable habitat.

Common Name ***Scientific Name***	**Status[1]**	**General Habitat Description and Blooming Period**	**Habitat Suitability Assessment[3]**
Trinity River jewelflower *Streptanthus oblanceolatus*	USFS_S/None/1B.2	Cliff and rock outcrops in cismontane woodland. Elevation: 65-1380 feet. Bloom: Apr-Jun.	Trinity County populations are known from cliff and rock outcrops. Project ESL does not contain suitable habitat.
Beaked tracyina *Tracyina rostrata*	None/None/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland. Elevation: 295-2590 feet. Bloom: May-Jun.	Project ESL is outside the known distribution of this species. Project ESL contains marginal habitat.
Fungi			
Red-pored bolete *Boletus pulcherrimus*	USFS_S	Perennially moist, mature or late-seral fir forest that includes tanoak. Elevation: All elevations where habitat parameters are met.	Project ESL does not contain habitat.
Branched collybia *Dendrocollybia racemosa*	USFS_S	Nutrient rich leaf mulch or decaying fungi in moist, mid-mature to late-seral conifer forest. Elevation: All elevations where habitat parameters are met.	Project ESL does not contain habitat.
Olive phaeocollybia *Phaeocollybia olivacea*	USFS_S	Moist, mixed conifer forest containing oak or tanoak. Elevation: All elevations where habitat parameters are met.	Project ESL contains marginal habitat.

Note: This table includes special status California Native Plant Society (CNPS) records (by habitat and elevation), USFS and BLM Sensitive species with potential to occur, and California Natural Diversity Database (CNDDB) query results, if the species has habitat. Select species are also included from the BLM Suspected/Known from Redding Field Office list (Jan 2020) if habitat occurs or if the project area is within the known species distribution.

[1]Status Codes: FE = Federally listed as endangered; CE = California listed as endangered; CR = California Rare; USFS_S = U.S. Forest Service Sensitive; BLMS = Bureau of Land Management Sensitive

California Rare Plant Ranks (CRPR) Codes and Extensions:
- 1B = Plants rare, threatened, or endangered in California and elsewhere
- 2B = Plants rare, threatened, or endangered in California but more common elsewhere
- 3 = Plants about which more information is needed
- 4 = Plants of limited distribution
  - xx.1 Seriously threatened in California
  - xx.2 Moderately threatened in California
  - xx.3 Not very threatened in California

Appendix J – Wild and Scenic River Analysis and Determination

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APPENDIX J

CHAPMAN RANCH PHASE B (RIVER MILE 82.8-83.8) WILD AND SCENIC RIVER, SECTION 7 ANALYSIS AND DETERMINATION

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1 INTRODUCTION

Section 7(a) of the Wild and Scenic Rivers Act (WSRA) requires the river-administering agency to evaluate the effects of a federally assisted water resources project proposed within a Wild and Scenic River (WSR) corridor on the river's free-flowing condition, water quality, and outstandingly remarkable values (ORVs). The following analysis is a summary of the impacts of the Chapman Ranch Phase B Channel Rehabilitation Project ("Project", "Phase B") on the Trinity River about 3 miles south of Junction City, California.

The Phase B project is designed to benefit anadromous fish. Because the Trinity River intersects Bureau of Land Management (BLM) and National Forest Service (NSF)-administered lands at the Phase B project site, the U.S. Forest Service (Forest Service) and the BLM have the responsibility to determine whether the proposed Project would have a direct and adverse effect on the river's free-flowing condition, water quality, and/or ORVs.

The Trinity River was designated as a WSR in 1981 under the WSRA. In addition to the mainstem Trinity River from the confluence with the Klamath River to 100 yards below Lewiston Dam, three other sections of the river were designated: (1) the North Fork from the Trinity River confluence to the southern boundary of the Trinity Alps Wilderness Area, (2) the South Fork from the Trinity River confluence to the California State Highway 36 bridge crossing, and (3) the New River from the Trinity River confluence to the Trinity Alps Wilderness Area.

These sections of the Trinity River were designated as WSRs to preserve the anadromous and resident fisheries, outstanding geologic resource values, scenic values, recreational values, and cultural and historic values. The ORV that is specific to the section of the Trinity River that encompasses the Project is its anadromous fishery. Under an interagency agreement between the National Park Service, the BLM, and the Forest Service, the BLM generally has the responsibility for conducting WSRA Section 7 determinations for the mainstem Trinity River from Lewiston Dam to the confluence with the North Fork Trinity River. After the designation, BLM classified the mainstem Trinity River as a Recreational River from 100 yards below Lewiston Dam downstream to Cedar Flat.

The proponent for the proposed action at Phase B (River Mile 82.8-83.8) is the Bureau of Reclamation (Reclamation), under the implementation of the Trinity River Restoration Program (TRRP). Because a portion of the proposed activity would occur on federally-managed lands, the BLM and the Forest Service serve as co-lead federal agencies along with the TRRP for an environmental assessment/initial study (EA/IS) of the integrated National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) document prepared for this project.

This analysis and the subsequent determination evaluate the effects of the proposed action on the Trinity River's free-flowing condition, water quality, and the ORVs and ensure their protection as required under Section 7 of the WSRA. Because of the length and level of detail provided in the EA/IS, this WSR analysis is presented in summary form and refers the reader to the specific sections of Chapter 3 of the EA/IS for additional information on water quality, fisheries, wildlife, flora and fauna, recreational, and aesthetic values.

2 DEFINITION OF THE ACTIVITY

2.1 PROJECT PROPONENT

U.S. Bureau of Reclamation (Reclamation), Trinity River Restoration Program

2.2 PURPOSE AND NEED FOR THE PROJECT

The overarching purpose of the TRRP is to restore fish populations to pre-dam levels and restore dependent fisheries, including those held in trust by the federal government for the Hoopa Valley Tribe (HVT) and the Yurok Tribe (YT). The fundamental purpose of the proposed action is to enhance the fishery and other values provided by the Trinity River in the general vicinity of the Phase B site by implementing the rehabilitation activities illustrated on Figure 2-1 of the EA (and described in detail in Appendix D, Project Details, of the EA/IS). The Phase B project is designed to work in concert with and to increase the beneficial effects of the Chapman Ranch Phase A Channel Rehabilitation project that was completed in 2020.

Specifically, the proposed action would reestablish complex functional habitat for salmonids and other aquatic organisms (e.g., Pacific lamprey), enhance natural river processes for the benefit of aquatic, riparian, and terrestrial species, and provide conditions suitable for reestablishing native riparian vegetation. The proposed action was one of the original 43 projects listed in the 2000 ROD to restore the fish resources of the Trinity River. It is intended to enhance channel complexity and juvenile salmonid refugia habitat (e.g., large shallow slow areas in proximity to cover) that have emerged as important rehabilitation components as a result of the TRRP's ongoing monitoring efforts.

As part of the TRRP's Phase 2 channel rehabilitation efforts described in the 2000 ROD, the proposed action is one of about ten channel rehabilitation projects that the TRRP expects to implement in the next 10 years. These Phase 2 projects are in addition to the ongoing flow/sediment management and watershed restoration elements of the TRRP.

Implementation of the proposed action would incorporate environmental commitments and project design features to ensure that it is consistent with the management goals and objectives established by the BLM for the Trinity River under its Redding Resource Management Plan to specifically support management actions intended to enhance the fishery and recreational ORVs of the Trinity River. The Project is consistent with Aquatic Conservation Strategy objectives established by the Forest Service's Northwest Forest Plan.[1]

[1] USDA, USDI. 1994c. Standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl: Attachment A to the Record of Decision for Amendments to Forest Service and Bureau of Land Management planning documents within range of the northern spotted owl. p. B-11.

The proposed action was developed through a cooperative effort by the TRRP, BLM, Forest Service, and Yurok and Hoopa Valley tribes. It is intended to improve the conveyance of flows by reestablishing the alluvial attributes of the Trinity River, namely floodplains and side channels while decreasing the potential for channel constriction by modifying floodplain widths and elevations.

2.3 GEOGRAPHIC LOCATION OF THE PROJECT

The Project site is located about 3 miles south (upstream) of Junction City, California. It is in Township 33 North, Range 10 West, Sections 19, 20, 29 and 30, Mount Diablo Base and Meridian. The river elevation at the site is approximately 1,520 feet above mean sea level. The Phase B project would span 63 acres south of Junction City, CA, between river miles (RM) 83.5 and 83.8 and adjacent to the Chapman Ranch Phase A project (RM 82.8 to 83.5). The Project area encompasses both federal and private lands. Most of the lands included in the proposed footprint are managed by the USFS (29 acres) or the BLM (27 acres). The remainder consists of several privately-owned parcels (7 acres) located at the upstream and downstream boundaries of the Project area. Phase B would be accessed via Sky Ranch Road on River right, and Dutch Creek Road (approximately 3 miles upstream of the Dutch Creek Road bridge) on River left (Figure 2-1 of the EA/IS).

2.4 DURATION OF THE ACTIVITIES

In general, in-river construction and activities other than revegetation would occur primarily on river left between July 15 and September 15, 2021. On river right, work (e.g., staging site preparation) may occur beginning in fall and winter 2020 and continuing through 2021. Revegetation activities would occur primarily in the wet months following construction. Excavation, processing of excavated material, and placement of excess material in upland areas would occur during the in-river construction window under base-flow conditions. Floodplain excavation would occur in summer. The Project is proposed for implementation in summer 2021, but revegetation efforts would not occur until after construction is completed, likely beginning in fall 2021 and continuing through spring 2022. After site construction, maintenance activities including efforts to maintain/enhance vegetation or riverine habitat diversity, may be conducted as needed, within authorized public land use areas per the general environmental commitments listed in Appendix E, Environmental Commitments, of the EA/IS. For example, structured log jams may be replaced or enhanced within the areas designated for SLJs in the EA.

2.5 MAGNITUDE AND EXTENT OF THE PROJECT ACTIVITIES

The magnitude and extent of the activities associated with the Project are summarized below. The Description of Alternatives and Appendix D, Project Details, of the EA/IS provide an in-depth description of the design objectives and each activity area. With the exception of recontouring and vegetation removal, each activity type and area has been assigned a unique alphabetic and numeric identification and descriptive label that corresponds to the type and location of the activity area illustrated in Figure 2-1 of the EA/IS.

2.5.1 Recontouring and Vegetation Removal

Under the recontouring and vegetation removal activities, the ground surface would be modified to reduce riparian encroachment and the risk of stranding juvenile salmonids. To varying degrees, vegetation would be cleared and removed at all activity areas that would be subject to rehabilitation activities, with the exception of crossings. Where recontouring (e.g., floodplain lowering) would occur, the activity areas would be subject to vegetation removal. Where possible, riparian vegetation (e.g., willow poles) would be salvaged for use in onsite

revegetation efforts. Unlike the other activities, these activities are not shown on Figure 2-1 of the EA/IS because they overlap with most of the other activity areas.

Grading would be required to construct or enhance topographic features that could develop into functional riparian habitat; excavation and the placement of fill would be balanced. Activities would be accomplished using a variety of methods, including using hand tools and heavy equipment such as excavators, bulldozers, dump trucks, and, potentially, scrapers. Where feasible, existing riparian vegetation would be maintained to facilitate future recruitment. In addition to the activity areas that would be cleared prior to grading, site-specific removal of trees (e.g., conifers and hardwoods) would be required to enhance the safety of the worksite, reduce fuel loading, and improve local conditions for individual tree growth and wildlife; the trees that are removed would be used in onsite wood placement. As illustrated in Figure 2-1 of the EA/IS, upland and contractor use areas (e.g., U-2, C-1) include discrete locations where retention of existing vegetation would occur to screen upland and staging activities to lessen the degree of visual impacts. Removal of vegetation on NFS lands would occur as authorized by the Forest Service.

2.5.2 Riverine Construction (R) – Lowered Floodplains, Collection Channels, and Ponds

Three types of inundated surfaces—floodplains, collection channels, and ponds—would be constructed to be inundated and function at flows ranging from about 500 to more than 7,000 cubic feet per second (cfs). Activities associated with the construction of these surfaces would also enhance the type and degree of connection to the mainstem at various flows. These activities are intended to expand the surface area of the channel that could be inundated by reoccurring flows below the ordinary high-water mark (i.e., 6,000 cfs). Vegetation would be cleared as necessary, and earth would be excavated to meet design elevations for periodic inundation. Under the proposed action, construction of these features would occur at R1, R6, R-10, and R-11. Any of these areas or adjoining contractor use areas may also be used for processing alluvial material that will be used in construction (e.g., cobbles for ballast and fish rock) of in-channel and riverine activity areas. See Appendix D, Project Details, for detailed descriptions of activities in these areas.

These features would increase the likelihood of channel migration resulting in enhanced sinuosity, thereby providing the habitat variability that was historically present and required to support the rapid growth of native fishes. Removal of alluvial material and placement of log jams would be used to create lowered and tiered floodplains, side channels, and ponds. Native riparian vegetation would be planted in newly lowered floodplains.

Construction of these surfaces would also enhance the type and degree of connection to the mainstem at various flows as portions of the existing mainstem channel would maintain water and aquatic habitat during all flows. These activities are intended to expand the surface area of the channel that could be inundated by reoccurring flows below the ordinary high-water mark (i.e., 7,000 cfs). Vegetation would be cleared as necessary, and earth would be excavated to meet design elevations for periodic inundation.

Newly inundated surfaces would provide important rearing and slow-water habitat for juvenile salmonids and other native anadromous fish and wildlife. They would also increase the likelihood of channel migration that would result in enhanced sinuosity, thereby providing the habitat variability that was historically present and is required to support the rapid growth of native fishes.

These treatment areas would rely on a combination of natural recruitment of native riparian vegetation and riparian planting to establish a more diverse assemblage of native vegetation. Revegetation efforts would be consistent with the requirements and commitments outlined in the TRRP's Draft Riparian Mitigation and

Monitoring Plan. This plan requires supplemental efforts (e.g., in-planting, weed control, irrigation) as necessary to establish riparian vegetation to meet the standard of no net loss in riparian vegetation from pre-Project levels.

2.5.3 In-Channel Construction (IC – Meander Channel Complex (Bars, Riffles and Pools)

The construction of various types and sizes of grade control structures (e.g., bars, riffles, islands, and pools), would increase channel complexity and available spawning and rearing habitat by promoting channel migration, enhancing sinuosity, reducing fine sediment storage, aiding coarse sediment transport, and restoring depositional features. Riffles are the shallower, faster-moving sections of a river. Gravel bars, pools, and islands provide habitat complexity as well as other ecological functions. Table 2-1 of the EA/IS outlines the in-channel activities that would occur under the proposed action.

The construction of various types and sizes of grade control structures, including construction or excavation of alluvial features and use of large wood as part of Structured Log Jams (SLJs), would increase channel complexity through the promotion of channel migration, increased sinuosity, and reduced fine sediment storage. The Project would include a meander channel complex that spans activity areas IC-1, IC-2, IC-3, and IC-4 and is intended to create a meander sequence with a bar-pool-riffle morphology that conforms to the current TRRP flow regime. Construction of this complex would increase channel length, complexity, sinuosity, and reduces slope in this section of the channel.

The meander complex will provide a diversity of water depths and velocities across a wider range of flows than the existing mainstem channel configuration. Activity area IC-2 would be a meandering channel with a pool and bar that is connected to riffles at IC-1 and IC-3 are riffles that would link it to a medial bar at IC-4. The constructed meander channel is intended to capture 70 percent of flows up to 7,155 cfs.

During construction of this meander complex, earthen berms and turbidity curtains would isolate constructed features to ensure that water quality standards are met. The berms would be removed at the end of construction if the water within these contained areas is of appropriate quality for discharge to the river, or they may be left in place for removal by subsequent high flows. Alternatively, water in the constructed features may be pumped to uplands or slowly metered into the mainstem river after construction. These techniques would ultimately reduce the amount of turbid water that would reach the Trinity River and would ensure that water quality permit requirements are met.

2.5.4 Upland (U)

Excavated materials (e.g., fill) that would not be used for instream construction would be placed in upland environments as fill on terraces formerly subjected to a variety of placer mining activities. These activity areas would be used to place excess material excavated in the construction of riverine and in-channel activity areas. The boundaries of these fill areas were defined using a FEMA-approved modeling process; field verification by surveyors and engineers was performed to ensure these areas would be located at an elevation above the FEMA 100-year floodplain. Within these activity areas, the fill depth would range from about 1 foot near the edge to 35 feet, depending on the size and location of the activity area. Fill materials would be spread in uniform layers that would blend in with the natural terrain and provide stable slopes for revegetation. Locations of upland areas are shown on Figure 2-1 of the EA/IS, and a detailed description is in Appendix D, Project Details.

3 BASELINE CONDITIONS

3.1 FREE-FLOWING CONDITION

Existing conditions at the Chapman Ranch Phase B site have been influenced by historic mining and subsequent reductions in flood flow on the Trinity River. The large volume of dredge tailing deposits essentially channelized this reach of the Trinity River and simplified the habitat available for aquatic, riparian, and upland species.

A variety of natural and management disturbance mechanisms have occurred at the site over the past 175 years. The channelization of the Trinity River associated with historic dredge activities was exacerbated by modifications to the flow regime of the Trinity River downstream of Lewiston Dam beginning in 1964—when the Trinity River Division (TRD) of the Central Valley Project (CVP) became fully operational. In 1981 when the Trinity River was designated a Wild and Scenic River, the riparian berms were developing for more than 15 years and channelizing the river in several locations. Scientists have recognized that the alluvial nature of the river had been modified extensively due to changes in the flow regime and sediment flux.

Although changes in the flow regime since 2006 have provided some opportunity to modify the form and function of the river, the Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Environmental Impact Report (Department of Interior 2000) required the establishment of the TRRP and stipulated that mechanical channel rehabilitation, including management of sediment input (reduction in fine sediments (sand) and augmentation of coarse sediment (gravel)), would be required to reconfigure sections of the river and provide opportunities for alluvial processes to become reestablished, albeit at a smaller scale than had occurred before the construction and operation of TRD facilities (e.g., Lewiston Dam) in 1964.

3.2 WATER QUALITY

Water quality downstream of Lewiston Dam is notably high quality, and Trinity River water is sometimes used to dilute waters of the Klamath during low water conditions in late summer. Water releases from the TRD influence flow volumes and velocities, water quality, and channel geometry downstream of Lewiston Dam. These influences are particularly important to water quality parameters such as temperature, turbidity, and suspended sediments. Water Quality in the Trinity Basin supports municipal and domestic water supply and beneficial uses primarily associated with sustaining high-quality fish habitat (cold-water spawning and rearing habitat) and recreational pursuits (swimming and boating). These benefits are protected by both numeric and narrative water quality objectives defined in the Water Quality Control Plan for the North Coast Region (Basin Plan 2011)

In 1992, the Environmental Protection Agency (EPA) added the Trinity River to its list of impaired rivers under the provisions of Section 303(d) of the Clean Water Act (CWA) in response to a determination by the State of California that the water quality standards for the river were not being met due to excessive sediment. In 2001, the EPA established a Total Maximum Daily Load (TMDL) for sediment in the river. The Regional Water Board has continued to identify the Trinity River as impaired in subsequent listing cycles. The primary adverse impacts associated with excessive sediment in the Trinity River pertain to degradation of habitat for anadromous salmonids. The restriction of streamflow downstream of the TRD has greatly contributed to the impairment of the Trinity River below Lewiston Dam (EPA 2001). Since 2006, TRRP recommended spring flow releases for fisheries have begun to scour sediment downstream of the TRD and have reduced excess sediment measured in the substrate in areas near Lewiston Dam.

Due to the location of the Phase B site, the effects of the TRD are less than those documented in TRRP monitoring efforts upstream of Douglas City at about RM 92.6. Data from ongoing sediment transport monitoring suggest that below Douglas City, additional streamflow and sediment contributions from Indian, Weaver, and Reading creeks significantly reduce the coarse sediment and streamflow deficits. Below Douglas City, dam releases and natural runoff events are generally capable of transporting sediment influxes.

Water temperature is one of the most important variables affecting salmonids and other aquatic organisms (Carter 2005). It influences feeding rates and growth, metabolism, development, timing of migration, spawning and rearing, and the availability of food. Since the construction of the TRD, discharge from Lewiston Dam has played an important role in regulating water temperatures in the Trinity River downstream. Depending on the type of water year and time of year, this effect diminishes to varying degrees with distance from Lewiston Dam.

A key objective of the TRRP's flow management is to improve the thermal regimes for all anadromous salmonid life stages that use the Trinity River. The TRRP has been using flow management practices to meet specific temperature management targets, and temperature monitoring data have been collected as part of the Adaptive Environmental Assessment and Management process since 2002. The project area is located between two water temperature monitoring sites, Douglas City and Junction City above Canyon Creek.

Flows, topography, and aspect primarily affect water temperatures in the Trinity River through the project area. Flows in this reach typically exceed the temperature targets for short periods of time in the fall (Magneson and Chamberlain 2015). Presently, river temperature requirements maintain the health of adult spawners. During spring rearing periods, when juvenile salmon and steelhead grow prior to their seaward migration, the temperature is often cooler than optimal growth conditions. The extensive mining activities and lack of fertile soil on the right side of the river limit the establishment of riparian forests. On the left bank of the river, mature upland forest occurs in isolated stands downslope from steep bedrock slopes. Project activities will plant the flood-plain and amend river-right soils to enhance localized conditions for riparian vegetation so that needed diverse water temperatures may be more available in the reach.

The Trinity River is typically very clear. Oil, gas, and chemical pollutants are generally not measurable in and its flow is often withdrawn to provide drinking water. Natural background turbidity levels range from 0 to 1 NTU during low-flow conditions (300 to 450 cfs). On May 20, 2015, the Regional Water Board issued a General Water Quality Certification (Order R1-2015-0028) to the TRRP under the auspices of Reclamation. This order implements portions of the Trinity River TMDL and provides an allowable zone of turbidity dilution (protective of sensitive aquatic life), within which turbidity levels shall not exceed 20 NTUs or 20 percent above naturally occurring background levels, whichever is greater. During in-river construction activities, the TRRP will monitor turbidity levels within 50 feet upstream of project activities (i.e., to serve as the natural background level) and 500 feet downstream of the in-river construction activities (point of compliance) that could increase turbidity. If naturally occurring background levels are greater than 20 NTUs, turbidity levels at the point of compliance shall not exceed 20 percent above the naturally occurring background level.

3.3 OUTSTANDINGLY REMARKABLE VALUES: ANADROMOUS FISH POPULATIONS AND HABITAT

The outstandingly remarkable value identified for this segment of the Trinity Wild and Scenic River is the anadromous fishery. Specifically, the Trinity River supports the Southern Oregon/North California Coast (SONCC) Coho salmon evolutionarily significant unit (ESU), which was federally listed as threatened under the

Endangered Species Act (ESA) in 1997. The Trinity River also supports Klamath Mountain Province steelhead trout, Upper Klamath/Trinity River (UKTR) fall-run Chinook salmon, a remnant population of UKTR spring-run Chinook salmon, and Pacific lamprey.

All anadromous salmonid species begin their life in fresh water, migrate to the ocean to rear and mature, and return to spawn in fresh water. Although the three Trinity River native species have generally similar life histories, they differ in the time of year they migrate and spawn, as well as when egg incubation typically occurs.

Adequate flows, water temperatures, water depths, and velocities; appropriate spawning and rearing substrates (e.g., riverbed gravels); and availability of instream cover and food are critical for the production of all anadromous salmonids. Spring-run Chinook salmon and summer-run steelhead also need long-term adult holding habitat for which pool size and depth, temperature, cover, and proximity to spawning gravel are important requirements. Newly emerged fry and juveniles of all species require rearing habitat with low velocities, open cobble substrate, and cool water temperatures. The emigration of smolts to the ocean and the immigration of spawning adults require adequately timed flows with the appropriate temperature, depth, and velocity.

The life histories and fresh water habitat requirements of these species and their distinct spawning populations are described in Appendix G of the Master EIR (2009 Regional Water Board and Reclamation; http://www.trrp.net/library/document/?id=476).

The TRRP has prioritized enhancing Trinity River juvenile salmonid rearing conditions through our management actions. Juvenile habitat availability and quality were determined to be the limiting factors for salmonid production during early Trinity River habitat evaluations (USFWS and HVT 1999). Current native river salmonid populations are dramatically reduced from historic abundance and the TRRP is charged with restoring populations to pre-dam levels. Fall-run Chinook salmon are the primary target for tribal harvest, commonly taken by sport fishermen, and arguably the species that would benefit most from the implementation of TRRP management actions. Consequently, chinook salmon numbers are targeted for juvenile population assessments.

Since full implementation of the TRRP began in 2005, there has been a positive trend in the number of chinook salmon fisheries (September 11, 2019 Trinity Management Council (TMC; The TRRP's governing body, presentation in Weitchpec, CA). Increases in Trinity River spring water release volumes, coupled with enhancement of channel habitat (like proposed in this project), are believed to have increased rearing habitat that has supported this trend. In general, out-migrating naturally produced juvenile chinook numbers have increased from approximately 1 million in the early 1990s to just under 4 million per year currently measured at the Willow Creek rotary screw traps (September 11, 2019 TMC presentation in Weitchpec, CA).

Baseline numbers of adult salmon returning to the river are more problematic to interpret than juvenile data as many factors outside of river restoration may impact fisheries escapement to the river. Though habitat restoration in the river may be improving conditions, fishery harvest (ocean and in-river) and poor ocean conditions (e.g., high temperatures or low food abundance) may drastically reduce the number of adults that return to natural spawning grounds and the Trinity hatchery. In general, salmon and steelhead population estimates are cyclical over time; however, general trends may be evident. Since TRRP efforts began, the proportion of spring and fall-run spawners returning to natural spawning areas has generally increased but overall numbers have diminished since peak escapement in 1987. Coho salmon numbers have also decreased since the mid-1980s and the proportion of hatchery spawners has increased. Steelhead escapement, however, has increased since the mid-1980s and this is considered the current strongest population of salmonids on the Trinity River. Current Trinity

River basin adult escapement goals set by the TRRP for natural-origin adults are 6,000 spring Chinook, 62,000 fall Chinook, 1,400 Coho, and 40,000 steelhead.

The flowing paragraphs summarize current adult run sizes as reported in the *Trinity River Basin Salmon and Steelhead Monitoring Project: Chinook and Coho Salmon and Fall-run Steelhead run-size estimate using mark-Recapture methods 2017-2018 Season* (CDFW 2018; http://www.trrp.net/library/document/?id=2409).

3.3.1 Spring-run Chinook salmon 2018 status summary:

Spawning escapement above the Junction City Weir (JCW) was an estimated 4,320 fish, including the 1,380 spring-run Chinook that entered TRH and 2,940 estimated natural area spawners. The escapement of 1,454 natural-origin adult spring-run Chinook was 24.2 percent of the TRRP goal of 6,000. The 2017 run-size estimate is approximately 27.5 percent of the 38-year average of 16,088. Estimated spring Chinook run-size has ranged from 2,381 fish in 1991 to 62,692 fish in 1988.

3.3.2 Fall-run Chinook salmon 2018 status summary:

An estimated 15,450 fall-run Chinook migrated upstream of the Willow Creek Weir (WCW) in 2017. The run-size of 5,837 jacks (precocious fish) and 9,613 adult fall Chinook adults was comprised of an estimated 4,961 natural origin adults, 3,096 natural-origin jacks, 4,652 hatchery-origin adults and 2,741 hatchery-origin jacks. There was no harvest reported (there was no legal harvest of fall Chinook in 2017), so the total escapement is the same as the estimated run-size. Escapement of 4,475 natural-origin adult fall Chinook is 8.0 percent of the 62,000 fish TRRP goal

3.3.3 Coho salmon 2018 status summary:

An estimated run-size of 655 Coho comprised of 244 jacks and 411 adults, migrated into the Trinity River basin upstream of the Willow Creek Weir (WCW) in 2017. A count of 420 entered the Trinity River Hatchery (TRH) and 235 were natural area spawners. The 2017 Coho escapement was comprised of an estimated 57 adult and nine jack natural-origin Coho, in addition to 354 hatchery-origin adults and 236 hatchery origin jacks. The escapement of 57 natural-origin Coho adults was 4.1 percent the TRRP goal of 1,400 fish. Estimated Coho run-size, upstream of WCW, has ranged from 655 fish in 2017 to 59,079 fish in 1987. This year's run-size of 655 is ranked 41st of the 41 years on record and is 4.1 percent of the 15,978 fish average:

3.3.4 Fall steelhead 2018 status summary:

An estimated 6,846 adult fall steelhead migrated upstream of WCW in 2017. Of those, 253 were estimated to have been harvested by anglers. Of the estimated 6,593 fish that escaped the fishery, 2,049 (53 natural-origin and 1,996 hatchery-origin) entered TRH, and 4,544 (2,295 natural-origin, and 2,249 hatchery-origin) escaped to natural spawning areas. In the 34 years for which CDFW has data (since 1980), run-size estimates have ranged from 2,972 in 1998 to 53,885 in 2007. Mean estimated run-size for fall adult steelhead in the Trinity River above WCW across the period of record is 14,470 fish. This year's run was 47.3 percent of the average. The natural-origin spawner escapement above WCW of 2,348 is 5.9 percent of the TRRP goal of 40,000 natural-origin steelhead.

4 WSR ACT SECTION 7(A) EVALUATION STANDARD AND EVALUATION CRITERIA

4.1 EVALUATION STANDARD

The Project will be evaluated to determine if the proposed activities will result in any "direct and adverse" effects to the rivers values (free flow, water quality, and ORVs). Under Forest Service Manual (FSM) 2354.74a, the Regional Forester has the responsibility to make determinations for water resources projects on designated WSRs where other federal assistance is involved. This responsibility may not be delegated. The Redding Field Manager will approve the determination for the BLM.

4.2 EVALUATION CRITERIA

The following specific criteria were used to evaluate for direct and adverse effects on the free flow, water quality, and outstandingly remarkable values.

4.2.1 Free Flowing Condition

- Alteration of within-channel conditions
  - Active channel location
  - Channel geometry
  - Channel slope
  - Channel form
  - Navigation of river
- Alteration of riparian and/or floodplain conditions including:
  - Vegetation Composition, Age Structure, Quantity, or Vigor
  - Relevant soil properties such as compaction or percent bare ground
  - Relevant floodplain properties such as width roughness, bank stability, or susceptibility to erosion.
- Alteration of upland conditions including:
  - Vegetation Composition, Age Structure, Quantity, or Vigor
  - Relevant soil properties such as compaction or percent bare ground
  - Relevant floodplain properties such as width roughness, bank stability or susceptibility to erosion.
  - Relevant hydrologic properties such as drainage patterns, or the character of the surface and subsurface flows.
- Alteration of hydrological processes including:
  - The ability of the channel to change course, reoccupy former segments, or inundate its floodplain.
  - Streambank erosion potential, sediment routing and depositions, or debris loading.
  - The amount or timing of flow in the channel
  - Existing flow patterns
  - Surface and subsurface flow characteristics.
  - Flood storage (detention storage).
  - Aggradation or degradation of the channel.
- Magnitude and extent of off-site changes including:

- Changes that influence other parts of the river system including:
  - Range of circumstance under which off-site changes might occur
  - Likelihood that predicted changes will be realized

- Processes involved, such as water and sediment, and the movement of nutrients.

4.2.2 Water Quality

- Temperature
- Turbidity
- Pollutants (i.e., oil and grease)
- Sediment

4.2.3 Outstandingly Remarkable Values: Anadromous Fish Habitat

The evaluation criteria for the anadromous fisheries ORV are:

- Water temperature
- Water quality (physical, biological, chemical)
- Aquatic habitat
  - Geomorphic condition
  - Substrate quality
  - Nutrient cycling
  - Condition of aquatic invertebrate, amphibian and mollusk habitat
  - Species composition and diversity
- Fish species population conditions, specifically:
  - Anadromous salmonid fish species
  - Resident fish species
  - Species traditionally used by, and culturally important to, Native Americans

This Section 7(a) evaluation addresses the potential of the Project to have a direct and adverse impact on the anadromous fishery ORV and other values identified by the WSRA. Chapters 2, 3, and 4 of the environmental assessment/initial study (EA/IS) prepared for the Project provide additional information and analysis on the WSR, water quality, fisheries, wildlife, flora and fauna, recreational, and aesthetic values.

5 ANALYSIS OF EFFECTS TO FREE FLOW

5.1 HOW THE ACTIVITY WILL DIRECTLY ALTER WITHIN-CHANNEL CONDITIONS

5.1.1 Position of the Activity Relative to the Streambed and Streambanks

Consistent with the purpose and need described in Section 2.2, the TRRP is mandated to reestablish the form and function of the Trinity River in a manner that reestablishes the fishery to pre-dam conditions. The Project will occur within and adjacent to the bed and banks of the Trinity River to improve the functions and values of the river for the fisheries ORV, while ensuring the protection of water quality. The Project activities described in Section 2.5 (Magnitude and Extent of the Project Activities) would change the form and function of the river within and, to varying degrees, downstream of the Project area by expanding floodplain habitat, increasing channel complexity, and reestablishing self-sustaining riparian vegetation. The Phase B project is designed to work in concert with, and to expand the beneficial impacts of, the Phase A project located directly downstream of where Phase B would be implemented.

5.1.2 Potential Project-Related Changes to Free Flow

Active Channel Location

The active channel of the Trinity River within the Project area is subject to extreme changes in flow throughout the water year, in part due to the TRRP flow release schedule that is implemented on an annual basis based on water year type. Base flows may be as low as 300 cfs in the fall and often exceed 6,000 cfs in the winter and spring; during wet years, TRRP releases may be as high as 11,000 cfs through this section of the Trinity River. Reducing the elevation of the active floodplain and incorporating alluvial features (e.g., riffles, point bars) within the active channel will provide opportunities for both short- and long-term changes in channel morphology (width, depth, and gradient), therefore increasing the amount and quality of habitat for all life stages of anadromous salmonids. The physical modifications of the Project would improve the free-flowing conditions at this site by allowing the river to more frequently inundate and move with its natural floodplain.

Channel Geometry

As described in Section 2.2, the fundamental objective of the Project is to implement activities intended to change the channel geometry in the short term and provide for opportunities for continued adjustment to the channel over time in response to ongoing changes in sediment and flow regimes associated with both natural and anthropogenic processes. Therefore increasing the amount and quality of habitat for all life stages of anadromous salmonids.

Channel Slope

The construction of a meander complex will result in a change in channel slope at a number of locations within the Project area to increase functional habitat for anadromous salmonids, the single ORV on the Trinity River. In some instances, the channel slope will increase to ensure that deposition of sediment does not impact pool habitat. In other cases, decreases in channel slope will enable the river to reestablish alluvial features (e.g., riffles, point bars) necessary for spawning and rearing habitat.

Channel Form

The various riverine and in-channel activities, including the incorporation of structured log jams, are expected to increase the hydraulic complexity of the flow pattern and sediment flux over a wide array of flows (350 cfs to

11,000 cfs). This habitat complexity is expected to maintain itself via enhanced flow processes and habitat that the Project creates. Inundated floodplains and functional side channels will add to this complexity as well as provide opportunities to reestablish functional riparian vegetation.

Navigation of the River

The Trinity River provides year-round recreational opportunities, including boating, kayaking, canoeing, rafting, inner tubing, fishing, swimming, camping, gold panning, wildlife viewing, picnicking, hiking, and sightseeing. Fishing for Chinook salmon, steelhead, and rainbow and brown trout is a major recreational activity on the Trinity River throughout the year but is more prevalent between April and December.

BLM issues up to 100 permits for commercial fishing guides along this reach of river. The Forest Service also issues 13 rafting permits for the river, although most rafting occurs downstream of the Project area. Visitor use in the Project area is generally light throughout the year, with bank fishermen, drift boats, and rafts occasionally transiting the area.

Temporary construction activities associated with the Project could pose a physical hazard to recreational users of the river and cause short-term resource damage to lands used for recreational activities in and adjacent to the Project area. Potential physical hazards to recreationists include the presence of temporary river crossings (e.g., X-1, X-2), operation of construction equipment and vehicles in and adjacent to the river, changes in the river's subsurface flow patterns as a result of the in-channel addition or removal of gravel, the addition of wood into the channel, and an increased potential for a hazardous materials spill (e.g., diesel and hydraulic fluid) from construction equipment and vehicles operating in and adjacent to the river.

During Project implementation, public access in the construction area would be limited. Access to adjacent private properties would be maintained throughout the construction period; however, access to the project area would be restricted to project traffic based on individual agreements with landowners and not available to the public during construction Public access points to the Project area would be available to recreationists throughout the construction period. Alternative locations for public access are available upstream at Lorenz Gulch and Dutton Creek and downstream at the Sky Ranch and Junction City campground boat launch sites.

An environmental commitment listed in described in Appendix E, Environmental Commitments, requires Reclamation to post precautionary signage and other public notification warning of in-river construction to reduce the hazards to recreational users associated with in-river construction activities. This approach has worked well for previous TRRP projects. It has been particularly effective in reducing short-term impacts on in-water recreational activities such as boating and fishing over the past 10 years. In the long term, natural vegetation and a more sinuous naturally functioning river will benefit river recreation.

5.2 HOW THE ACTIVITY WILL DIRECTLY ALTER RIPARIAN AND/OR FLOODPLAIN CONDITIONS

5.2.1 The Position of the Activity Relative to the Riparian Area and Floodplain

As described above, the primary purpose of the Project is to make physical changes to the landscape within the Project area that will essentially "take the handcuffs off the river" and allow for dynamic changes to continue over the long-term under the flow and sediment regimes that persist after the construction of the TRD.

5.2.2 Potential Project-Related Changes to Floodplain Conditions

Vegetation Composition, Age Structure, Quantity, or Vigor

Figure 3-1 of the EA/IS shows the habitat types (based on dominant vegetation type) that in the Project area. Currently, the riparian vegetation that occurs along the banks of the Trinity River lacks complexity with respect to composition, age structure, and quality. The sand berm that has developed since the TRD was constructed is occupied by homogeneous stands of willow in narrow stringers with little riparian vegetation along the margins of the floodplain. In addition, the entire corridor was subjected to a variety of placer mining activities, including both hydraulic and dredge operations within the Project area. As a result, the floodplains have increased in elevation over time due to excessive deposition of mine tailings with virtually no soil available to support riparian or upland vegetation other than extensive populations of invasive weeds (e.g., star thistle and Himalayan blackberry).

The Project would result in lowering floodplain elevations to enable alluvial processes to reestablish under lower flows and provide opportunities to reestablish a complex assemblage of native riparian and upland vegetation, including trees, shrubs, and grasses at elevations that enable rooting within the hyporheic zone of alluvial features.

The revegetation efforts described in Appendix D, Project Details, have been developed in conjunction with Forest Service botanists and fish biologists to ensure that a complex riparian community becomes reestablished within 5-10 years after construction is completed. In addition, the clearing and grading of both floodplain and upland areas are expected to reduce the populations of invasive plants and increase the probability for recruitment of native plant species along with extensive planting efforts.

Relevant Soil Properties Such as Compaction or Percent Bare Ground

With the exceptions of several of the access routes and staging areas, most of the Project area has been disturbed by historic mining activities and, to a lesser degree, by periodic flood flows. Before the construction of the TRD, flood flows in this section of the river replenished the alluvial material that allows for soil development over time. The large-scale historic mining activities through the Project area essentially left isolated locations where a soil profile remains intact, and large portions of the Project area have no soil or vegetation remaining. The nature of the alluvial and upland landscapes that would be subject to Project activities is not conducive to the compaction typically associated with heavy equipment. The amount of revegetation proposed is expected to decrease the amount of bare ground over the long term as riparian and upland vegetation becomes reestablished on the newly constructed surfaces.

Relevant Floodplain Properties Such as Width, Roughness, Bank Stability, or Susceptibility to Erosion

As described previously, changes in floodplain properties to enhance habitat for anadromous salmonids (the single ORV) is one of the key objectives of the Project. The overall goal of the TRRP is to provide opportunities for the river to continue to change and adjust to modified flow and sediment regimes required under the 2000 ROD.

5.3 HOW THE ACTIVITY WILL DIRECTLY ALTER UPLAND CONDITIONS

5.3.1 The Position of the Activity Relative to the Uplands

As described in section 3.5.1 of the EA/IS, virtually the entire upland portion of the Project area has been subjected to some level of disturbance associated with historic mining activities and/or with rural residences

established on private parcels. The Project would use upland areas for placement of excess excavation, access, and staging activities. At specific locations upslope from the left bank, upland vegetation would be removed to provide adequate and safe working conditions for these types of activities. Phase B contractor use areas on both sides of the river have been previously used during Phase A and would be revegetated after construction activities are completed.

5.3.2 Potential Project-Related Changes to Uplands

Vegetation Composition, Age Structure, Quantity, or Vigor

Figure 3-1 of the EA/IS shows the type of habitat that occurs within the upland activity areas. The composition, age structure, and quantity of vegetation within these areas reflect more than 150 years of periodic disturbance associated with historic mining activities (both hard rock and placer) and subsequent occupation and use of both private and NFS lands for a variety of recreational purposes and residential structures. On NFS lands, clearing and grading associated with access and upland activity areas would result in some reduction in mature vegetation, but reclamation of large mine tailing deposits would include revegetation with native trees (conifers and hardwoods), shrubs, and grasses.

Relevant Soil Properties Such as Compaction or Percent Bare Ground

Except for several of the access routes and staging areas, most of the Project area has been disturbed by historic mining activities and, to a lesser degree, by periodic flood flows. Before the construction of the TRD, flood flows in this section of the river replenished the alluvial material that allows for soil development over time. The large-scale historic mining activities throughout the Project area essentially left isolated locations where a soil profile remains intact, and large portions of the Project area have no soil or vegetation remaining. The nature of the alluvial and upland landscapes that would be subject to Project activities is not conducive to the compaction typically associated with heavy equipment. The amount of revegetation proposed is expected to decrease the amount of bare ground over the long term as riparian and upland vegetation become reestablished on the newly constructed surfaces.

Relevant Floodplain Properties Such as Width, Roughness, Bank Stability, or Susceptibility to Erosion

As described previously, changes in the floodplain properties to enhance habitat for anadromous salmonids (the single ORV) is the key objectives of the Project (see above, Purpose and Need for the Project). The overall goal of the TRRP is to provide opportunities for the river to continue to change and adjust to modified flow and sediment regimes as required under the 2000 ROD.

Relevant Hydrologic Properties Such as Drainage Patterns or the Character of Surface and Subsurface Flows

The grading plan developed for the upland disposal areas includes topographic features intended to disperse rather than concentrate overland flow. The geologic investigations conducted by the TRRP design team did not identify any sources of surface or groundwater flow within any of the activity areas illustrated on Figure 2-1 of the EA/IS.

Archaeological, Cultural, or Other Identified Significant Resource Values

As described in Section 3.5 of the EA/IS, pre-historic and historic cultural resources occur within and adjacent to the activity areas associated with the Project. Close coordination between Reclamation, Forest Service, and BLM cultural resource managers resulted in a Project that complies with section 106 of the National Historic Preservation Act and received concurrence from the California State Historic Preservation Officer.

5.4 HOW CHANGES IN ON-SITE CONDITIONS CAN OR WILL ALTER EXISTING HYDROLOGIC PROCESSES

5.4.1 Ability of the Channel to Change Course, Reoccupy Former Segments, or Inundate Its Floodplain

The Project is expected to increase the ability of the river to meander and evolve into a more complex and dynamic channel structure. The expansion of functional floodplain accessible at a much wider range of flows, coupled with the development of a low-flow side channel, will promote reestablishment of morphological response to ongoing changes in the flow and sediment regimes that are key elements of the TRRP.

5.4.2 Potential Project-Related Changes to Hydrologic Processes

Streambank Erosion Potential, Sediment Routing, and Deposition, or Debris Loading

A key objective of the TRRP is reestablishing the alluvial processes that occurred before the construction of the TRD but at a reduced level of scale and intensity. Changes in bank erosion, sediment flux, and debris loading are viewed as positive outcomes by the TRRP and its partners.

The Amount or Timing of Flow in the Channel

The flow regime of this section of the Trinity River is highly influenced by the TRD and releases from Lewiston Dam. Section 3.10 of the EA/IS provides an in-depth discussion of this topic.

Existing Flow Patterns

The Trinity River is highly regulated through the Project area, particularly under base flow conditions. The Project would not change the flow patterns in the river within or adjacent to the Project area other than providing opportunities for floodplain inundation, changes in the direction and velocity of flow associated with the new meander complex, and direction of some flow into a new side channel.

Where structured log jams and other large wood structures are placed in mid-channel locations, the flow is expected to increase in velocity on both sides and decrease in velocity immediately upstream and downstream. An undetermined percentage of the flow may be directed toward both adjacent banks because of new mid-channel features. However, due to expansion of the floodplain and shallow bedrock on river left, these banks will be resilient to erosion as revegetation occurs over time.

Surface and Subsurface Flow Characteristics

Please refer to existing flow patterns described above.

Flood Storage (Detention Storage)

The existing topographic setting of the Project area is not conducive to flood storage. The reduction in the floodplain elevations would increase the hyporheic connection between the river and shallow groundwater. Planting at the depth where rooted plants can access this hyporheic flow during the growing season would increase the potential for successful revegetation of riparian areas with post-construction irrigation.

Aggradation or Degradation of the Channel

The fundamental purpose of the Project is to reestablish morphological processes that would enhance opportunities for aggradation and degradation of alluvial features in a manner that resembles processes typically associated with an unregulated river but at a smaller scale. River and in-channel activities are intended to jumpstart this process and provide the river with the means to continue these processes overtime under the TRRP-managed flow regime.

5.4.3 Estimation of the Magnitude and Spatial Extent of Potential Off-Site Changes

Changes That Influence Other Parts of the River System

The Project is likely to affect downstream areas of the river in several ways. The short-term episodic increases in turbidity related to in-river construction and access activities would be noticeable for periods of time ranging from several hours to several days, even though the turbidity levels would not exceed the permit thresholds. High flows following construction are expected to remobilize alluvial material to depositional features downstream, essentially replenishing spawning gravels at other locations. Over time, the various large wood structures will degrade and offer a source of large wood to other areas downstream. The modification of hydraulic conditions within the Project area could have some effect on the channel directly downstream for a period while the channel adjusts to the new configuration. However, these changes are not expected to be significant enough to influence the river downstream of the Project reach.

The Range of Circumstances under Which Off-Site Changes Might Occur

Increases in turbidity may be visible for several miles for short periods of time before dilution and mixing occur downstream of Canyon Creek. This perennial stream enters the river about 5 miles below the Project area. The downstream mobilization of large wood could occur periodically for several years; the distance downstream would vary considerably depending on the duration and magnitude of flood events.

The Likelihood That Predicted Changes Will Be Realized

It is highly likely that the predicted changes for this Project will be realized. Recent TRRP projects intended to restore alluvial processes and benefit anadromous fish habitat in the mainstem Trinity River have resulted in the same changes predicted for this Project.

Specify Processes Involved, Such as Water and Sediment, and the Movement of Nutrients

The construction of a meander complex and expansion of floodplain and side-channel habitat, coupled with placement of large wood throughout the Project area, will have short-term effects on how water, sediment (including organic sediment), and nutrient cycling processes are expected to have a beneficial effect on the ORV for the Trinity River in both the short term and long term.

6 ANALYSIS OF EFFECTS TO WATER QUALITY

6.1 RELEVANT WATER QUALITY PARAMETERS

The primary water quality parameter that would be affected by the Project is sediment. Temperature is not a limiting factor to the ORV in the mainstem Trinity River due to the influence of the TRD and the managed flow regime downstream of Lewiston Dam. In 1992, the EPA added the Trinity River to its list of impaired rivers under Section 303 (d) of the Clean Water Act due to excessive sediment. In 2001, the EPA established a Total Maximum Daily Load (TMDL) for sediment in the river, primarily associated with the degradation of habitat for anadromous salmonids associated with excessive sedimentation. Additional information on this topic is available for review in section 3.11 of the EA/IS.

The Trinity River is typically very clear, with natural background turbidity levels in the range of 0 to 1 nephelometric turbidity units (NTUs) during low-flow conditions (300 to 450 cfs). Due to the very low background concentrations during the summer, turbidity levels immediately downstream of the most carefully planned and implemented in-channel restoration activities will likely be increased by more than 20 percent above background levels, and short-term plumes extending downstream of restoration activities will be visible. However, turbidity levels will not exceed 20 NTUs at 500 ft downstream of the project (as permitted by the Water Quality Control Board), thereby keeping turbidity well below levels detrimental to aquatic life and levels experienced during natural winter storm runoff.

Over the years, the TRRP has increasingly conducted in-channel work to create immediate aquatic habitat and to conditions where river flows will enhance functioning river attributes (e.g., backwaters and alternating point bars). Effective construction turbidity control measures will be incorporated to minimize turbidity impacts during construction. These include:

- **Structural Containment** – Use structures such as earth barriers, K-rail containment dams, and silt curtains to isolate turbid water from the active channel. These structures typically remain in place until the riverine features are fully excavated and graded.
- **Processing** – Gravel and cobbles excavated from alluvial deposits (e.g., floodplain, dredge tailings) are processed and, in some cases, washed to help maintain low turbidity levels associated with placement of gravel and cobbles in or adjacent to the channel.
- **Pace of Construction** – Controlling the pace of in-channel excavation and placement of alluvial material ensures that sediment input into the water column is consistent with permit requirements. This method requires direct field observations and real-time turbidity construction monitoring.
- **Flushing** – Within structurally contained areas, turbid water is flushed by allowing flow into the work area and regulating the outflow as a function of measured turbidity levels. Small weirs are used to adjust inflow and outflow rates to ensure permit requirements are met.
- **Channel Bottom Cleaning** – This method entails the removal of silt- and clay-sized sediment from the channel bottom, typically by pumping or hand excavation. Turbid effluent water is pumped upslope to containment ponds or areas that are subsequently incorporated into site rehabilitation efforts.

7 ANALYSIS OF EFFECTS TO OUTSTANDINGLY REMARKABLE VALUES

Fish in the Trinity River are an ORV. The river supports a number of native and non-native fish and other aquatic organisms. Before the installation of the TRD, the river provided habitat for numerous anadromous fish species, including Chinook salmon, Coho salmon, steelhead trout, and Pacific lamprey. A fundamental objective of the TRRP is the restoration and enhancement of the Trinity River fishery.

Although it is generally recognized that the alluvial features existed on the date of designation, the transitory nature of riverine environments precludes the ability to quantify these features fully. The extensive body of scientific evidence available for the Trinity River suggests that the riparian berms and floodplain features had extensive riparian communities that were well established on the date of designation.

7.1 WATER TEMPERATURE

Water temperature is one of the most important variables affecting salmonids and other aquatic organisms (Carter 2005). It influences feeding rates and growth, metabolism, development, timing of migration, spawning and rearing, and the availability of food. Before full implementation of the ROD in 2005, up to 90 percent of the natural Trinity River flow was diverted to the Sacramento River basin through facilities associated with the TRD. Water quality in the Trinity River was substantially altered in 1964—particularly temperature and water regimes. Releases from the TRD are generally cold (42 to 47 degrees Fahrenheit [°F]). These temperatures are transmitted through Lewiston Reservoir to the Trinity River below Lewiston Dam. Although the proposed action would remove riparian vegetation, this action is not expected to have a negative impact on water temperatures in the river.

Flows, topography, and aspect primarily influence water temperatures in the Trinity River through the project area. Flows in this reach typically exceed the temperature targets for short periods in the fall (Magneson and Chamberlain 2015). The Phase B reach is oriented in a northeast-southwest direction with very little shade provided by topography or riparian vegetation. The extensive mining activities and lack of fertile soil on the left side of the river limit the establishment of riparian forests. Mature upland forest occurs in isolated stands on both sides of the river. Overall, the Project is expected to provide a neutral to beneficial effect on temperatures within and downstream of the Project Area both short term and long term.

7.2 WATER QUALITY (PHYSICAL, BIOLOGICAL, CHEMICAL)

The activities incorporated into the Project have been developed to meet the objectives described in the EA/IS and are intended to reestablish functional fluvial and alluvial processes in and to some extent downstream of the project area. In the following discussion, the environmental consequences of the Project on water quality and the associated beneficial uses of the Trinity River focus on three water quality parameters: sediment, temperature, and turbidity.

Due to the shallow background turbidity levels during low-flow conditions, reduction of these turbidity levels to within 20 percent above background is generally not feasible, even with the environmental commitments listed in Appendix E. However, short-term increases in turbidity levels that occur during permitted restoration activities are generally not considered to be biologically detrimental to aquatic organisms because the duration of these increased levels is short (several hours) and fish are able to move away from the activity area. Monitoring

turbidity increases during the implementation of previous TRRP projects has shown that periods of increased turbidity are brief (generally less than 24 hours) at monitoring points located 500 feet downstream and that beneficial uses continued to be protected. In addition, the quantity of fine sediment introduced to the river during activities at low flows is typically small and is restricted to timing and location; furthermore, not all activity areas are experiencing disturbance at the same time.

The consequences of the Project on water quality associated with in-channel activities and lowering of floodplains would change the location and nature of sediment in and adjacent to the low-flow channel. The placement of spawning-sized gravel at the X-1 and X-2 crossing necessary to access the activity areas on river left would add approximately 150 cubic yards of material to the river; the gravel used for these crossings would be sized to ensure that it would mobilize during high flows in the first year following construction and provide some augmentation of spawning habitat downstream. As described in the EA/IS and Appendix E, environmental commitments and design measures would be incorporated into the construction contract to minimize the potential for hazardous materials (e.g., hydraulic fluid) to leak into the river at locations where equipment is working in the water. These commitments and measures would be adequate to protect the beneficial uses of the Trinity River.

The activities incorporated into the Phase B project are intended to reconnect the existing floodplains with the channel, which would result in shallow depths and slow velocities across a wider range of stream flows than those currently being provided. Other activities incorporated into the Project would increase the complexity of the channel to increase habitat for all life stages. Due to the location and aspect of the river in the project area, water temperature in the river below Lewiston Dam is heavily influenced by flow releases from the dam as well as input from tributaries downstream. The east-west orientation of this reach also influences the degree to which afternoon shading affects water temperature.

The Project would include clearing and grading a number of activity areas, some of which have some amount of riparian vegetation. Functionally, the existing riparian vegetation has little influence on water temperature through this reach. Still, it does provide shaded riparian area habitat for aquatic organisms at isolated locations along the channel margin. While there would be some localized effects on water temperature because of clearing and grading activities, the expansion of the main channel (IC-2) and lowering of the floodplains (R-6, R-10, R-11) are expected to establish more riparian vegetation. Revegetation efforts associated with these activities would increase functional riparian vegetation, which in turn would increase shade and improve habitat for juvenile salmonids along the margins of these features under a wide range of flow conditions, including those that may occur during late-summer releases when air temperatures are high.

The activities described in Appendix D, Project Details would temporarily increase turbidity and total suspended solids in the Trinity River. The incorporation of the environmental commitments listed in Appendix E, Environmental Commitments, conjunction with the design elements and construction criteria (e.g., in-river construction, water pollution prevention, and construction schedules) are intended to limit turbidity and suspended sediments in the Trinity River. Additionally, the river's edge and in-channel construction activities would be staged to minimize potential turbidity effects. During in-channel construction activities, increases in turbidity levels could occur because of the excavation of alluvial material. Connection of isolated and newly constructed side channels (e.g., during the first flush of flowing water) would result in short-term increases in turbidity levels as this material is removed from and/or redistributed downstream. Fine sediments may be suspended in the river for several hours following construction activities; however, the project would be compliant with the conditions of the Program's General Water Quality Certification and is not expected to have a negative impact on beneficial uses.

The extent of downstream sedimentation would be a function of the size and mobility of the substrate. For example, fine-grained sediments such as silts and clays can be carried several thousand feet downstream of construction zones. In contrast, larger-sized sediments such as coarse sands and gravels tend to drop out of the water column within several feet of the construction zone. Collectively, the activities included in the Project could result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially violate the Basin Plan objectives for turbidity in the Trinity River.

Two discrete temporary crossings of the river at this site (X-1 and X-2) would provide access for in-channel and riverine work areas. This low-flow channel crossing would be constructed of appropriately sized alluvial materials. In conjunction with the construction of R and IC activity areas, additional crossings would be used at several locations using similar types of temporary fords. Placement of alluvial fill materials could temporarily increase turbidity and suspended materials during and immediately following crossing construction. Removal and distribution of alluvial materials upon deconstruction of the low-flow channel crossings could also increase turbidity and suspended materials during and immediately following excavation.

7.3 AQUATIC AND RIPARIAN HABITAT

The Trinity River Flow Evaluation Final Report (U.S. Fish and Wildlife Service and HVT 1999) determined that lack of spawning and rearing habitat for juvenile salmonids is likely a primary factor limiting the recovery of salmonid populations in the Trinity River. Activities associated with the proposed action within the project area are specifically designed to increase the abundance of habitat for Trinity River salmonids by reconnecting the river with its floodplain, increasing channel sinuosity, creating complex off-channel aquatic and riparian habitat, and providing shallow low-velocity habitats near the river's edge.

The Project is designed to restore the alluvial processes of the Trinity River within the 1-mile reach associated with the Chapman Ranch Phase B site. As described in Chapter 3 of the EA/IS, increases in salmonid rearing habitat range by up to 54 percent under low-flow conditions (300 cubic feet per second (cfs)) and by up to 288 percent under high flows (6,000 cfs). As described in Appendix D, Project Details, about 3.2 acres of meander complex (pool-riffle sequences) would be constructed, 6.0 acres of side- and high-flow channels will be created, and 3.8 acres of floodplain would be enhanced and/or improved as a result of the proposed action.

The Project would result in the localized loss of vegetation and general disturbance to the bed and banks of the Trinity River. Removal of vegetation and soil could accelerate erosion processes in the project area and increase the potential for sediment delivery to the Trinity River. As discussed in the EA/IS, Water Quality section, the Project would result in some project-related effects on erosional processes and changes in the sediment regime within the project area and, to a limited extent, downstream. The excavation and placement of alluvial materials within the channel and associated floodplain of the Trinity River would result in changes to the amount and character of sediment that may be mobilized post-construction.

In certain IC, SLJ, and R activity areas, processed alluvium (gravel and cobble) would be placed within and adjacent to the low-flow channel in a manner intended to increase spawning and rearing habitat for Coho salmon and other salmonids. However, the environmental commitments listed in the above paragraph have been incorporated into the Project to minimize the release of fine sediment into the water column during or following construction and to reduce the impacts to existing spawning and rearing habitat for short periods, primarily in conjunction with elevated turbidity levels. The placement and use of several low-water fords in the Trinity River would require increasing the amount of coarse sediment at several shallow riffles during in-river construction

windows, possibly for several months. The presence and use of the fords across the Trinity River would occur at locations occasionally used by salmonids as spawning and rearing habitat. Proportionally, these fords would occupy a small percentage of the available habitat in the project reach during construction.

The Project's rehabilitation activities are intended to enhance the wetland, riverine, and upland for wildlife and fish. The Project would convert almost 10 acres of non-riparian areas (e.g., terrace deposits) to floodplain and riparian habitat within a 3- to 5-year post-project time frame. Temporary disturbance of these habitats in the project area during project implementation would occur in conjunction with vegetation removal, grading, and other construction activities. Populations of invasive plants will be removed to expand floodplain habitat for salmonids and other aquatic organisms.

Throughout the project area, activity areas were refined to avoid wooded areas where possible; however, several activity areas require the use of upland areas and would include the removal of conifers and other hardwood tree species. Tree removal (e.g., hazardous trees) outside these activity areas would be limited and subject to site-specific review and authorization by the BLM and the Forest Service prior to removal to enhance habitat complexity, provide safe working conditions, and facilitate access. The Project is intended to reduce the existing populations of noxious weeds and invasive plant species through grading, clearing, and revegetation activities as well as periodic flooding of newly constructed floodplains. During the rehabilitation activities, control measures for invasive plants (e.g., star thistle, Himalayan blackberry), including using weed-free erosion control materials and washing equipment, would be implemented per environmental commitments EC-VW-9 (see Appendix E) to prevent the spread of noxious weeds in the project area. Areas contaminated with known occurrences of didymo (*Didymosphenia geminata*) would be avoided. If no uncontaminated areas are available for water drafting, water drafting equipment will be cleaned by approved methods before drafting water from an uncontaminated location. Didymo-infested water shall be discharged away from a water source or from the same source where it was taken.

Some trees and downed logs would be reused on-site to establish wood jams and structures along the river. Riparian and wetland habitats would be protected outside the activity areas and would be clearly marked for avoidance in accordance with EC-VW-1[4.7-1a]. Special-status plants have not been found in the project area and, therefore, would not be affected by the rehabilitation activities.

Implementation of the Project would result in direct impacts (i.e., impacts associated with work in the proposed activity areas) on approximately 2.73 acres of montane riparian habitat, 0.26 acre of valley foothill riparian habitat, and 1.26 acres of riverine habitat, for a total of 4.25 acres. The construction and use of temporary access and temporary activity areas (i.e., access roads, contractor use areas, and river crossings) would also result in 5.03 acres of temporary impacts, which include 4.22 acres of montane riparian habitat, 0.31 acre of valley foothill riparian habitat, and 0.50 acre of riverine habitat. Of this habitat, over 6 acres would be revegetated with riparian species. Because of the nature of the project, the impacts to riparian habitat from construction associated with access and staging areas would be temporary, and the riparian habitat is expected to recover over time. Figure 3-3 displays the size and location of the riparian habitat that would be affected.

Construction activities associated with the Project would result in temporary impacts to waters under the jurisdiction of the Corps (jurisdictional waters), which include the Trinity River and the wetlands and streams in the project area. Figure 3-2 in the EA/IS illustrates the size and location of waters of the United States that would be affected by the Project. Construction activities associated with the temporary access routes and use of activity areas (e.g., roads, staging) as part of the Project would temporarily affect up to 3.97 acres of riparian wetlands, 0.04 acre of seasonal wetlands, 2.15 acres of perennial stream, 0.01 acre of intermittent stream, and less than 0.01 acre of ephemeral stream. Approximately 2.66 acres of riparian wetlands and 3.86 acres of perennial stream

would be permanently affected as a result of the rehabilitation activities. However, because of the nature of the project, it is anticipated that there will be a net increase in jurisdictional waters within 5 to 10 years after the implementation of the Project.

As described in Appendix D, Project Details, and the EA/IS, both planting and natural recruitment of native species are planned for the revegetation of the riparian and upland areas under the Project. These revegetation efforts would follow TRRP's 2016 Draft Riparian Mitigation and Monitoring Plan and would incorporate the requirements of the Forest Service, BLM, and other cooperating, responsible, and trustee agencies and landowners. Revegetation will result in the reestablishment of approximately 16.5 acres in five elevation zones which include pond and emergent wetland (0.06 acre), channel margin wetland and emergent (1.81 acres), sedge wetland (1.41 acres), riparian infill (2.22), willow and cottonwood (3.42 acres), transition (4.02 acres), and upland (3.55 acres). Up to 27.98 acres of areas disturbed by project activities would also be seeded and mulched. Planned revegetation would include 158 willow clusters, 215 cottonwood clusters, 438 transition clusters, 387 upland clusters, 24 brush piles, 616 feet of willow trenches, 6 beaver dam analogs (each at 25 ft long), and 48 willow clumps. A total of 20.71 acres of riparian habitat would, therefore, be functional in 5 to 10 years after completion of the Project. Based on the impact tables in Figure 3-4 in the EA/IS, the Project would meet the TRRP's objective of no net loss of riparian habitat in the long term.

Exposed soils in the upland and staging areas are susceptible to mobilization from rainfall during early-season runoff events. In-river excavation is planned as part of Alternative 1; therefore, it is expected that excavation and operation of heavy equipment would re-suspend silt and sand, resulting in localized and temporary increases of suspended sediment and turbidity. Operation of heavy equipment in the active channel during these activities would likely re-suspend streambed sediments. Any juvenile salmonid salmon rearing in the area during in-channel construction could be temporarily displaced, or their social behavior could be temporarily disrupted by turbidity created during this activity.

Erosion and deposition of fine sediments associated with the implementation of the Project are expected to be localized and temporary. Some fine-textured sediment may settle near or on spawning habitat located downstream of riverine activity areas, but this sediment is not expected to impair redd excavation or spawning activities. Excavation, grading, and coarse sediment addition within the channel would occur only during low-flow conditions between July 15 and September 15 before the spawning period. In-river work, including the construction of temporary crossings, may temporarily displace adult salmonids using holding habitat within the project area to other holding habitat either upstream or downstream of the project reach due to transient turbidity and short-duration sediment plumes created by construction activity. Juvenile salmonids using this reach during this timeframe could also be temporarily displaced, or their social behavior could be temporarily disrupted due to increases in turbidity or suspended sediment. Behavioral disruption, even temporarily, could result in some increased vulnerability to competitive interactions or predation for salmonids. These temporary impacts were anticipated and addressed in the 2000 Biological Opinion (BO) and associated incidental take statement for the ROD as well as the amended BO for in-river work.

Adult Pacific lampreys migrate upstream from spring through early summer to spawn. Larval lampreys inhabit the river year-round. Siltation of nests that may be built-in suitable habitats (i.e., low-slope riffles) could occur. Filter feeding by larval lampreys could be disrupted by an increase in suspended sediments caused by construction-related erosion, although this impact would be very localized and temporary. In addition to ammocetes occupying alluvial substrate, freshwater mussel populations occur at locations through the project area. Mussel beds observed within the boundaries of in-channel activity areas will be flagged for avoidance and,

to the extent feasible, individuals will be relocated to nearby appropriate habitat that would not be disturbed (see EC-VW-10). Some mussels and lampreys may inadvertently be displaced during construction; this effect would be minimal to either species due to the large populations known to occur at other locations that would be protected within the project area as well as upstream and downstream.

The environmental commitments incorporated into the project would be implemented in conjunction with the construction activities described in Chapter 2. In addition to the typical practice of refueling construction equipment at upland activity areas, the Project also includes activities that would result in mechanized equipment (e.g., trucks, excavators) crossing and/or operating in the active channel for short periods. As a result, minor fuel and oil spills could occur, and there would be a risk of more significant releases. Without rapid containment and clean up, these materials could be toxic, depending on the location of the spill in proximity to water bodies in the project area. Oils, fuels, and other contaminants could have short-term effects on the various life stages of salmonids and other anadromous fish that are using habitat close to construction activities; however, this effect is not anticipated to negatively affect individual organisms or populations.

Coho salmon and other special-status aquatic species also occur in the Trinity River, and suitable salmonid rearing habitat is used in the project area year-round. Adult Coho and other salmonids migrate through the project area and use suitable spawning habitat throughout the 40-mile reach of the Trinity River below Lewiston Dam. Direct injury to, or mortality of, Coho salmon and other salmonids could occur during in-river construction and construction of the low-flow channel crossings. These in-water work activities would be conducted only during late-summer low-flow conditions (e.g., July 15 to September 15), thus minimizing the potential for direct mortality to rearing Coho and other salmonids because this period corresponds to a time of the year when the fewest number of juvenile salmonids are known to occur in the project reach.

NMFS expects that all displaced juvenile fish, including Coho salmon, would find suitable habitat in river reaches upstream or downstream of the project reach because juvenile rearing habitat in the mainstem Trinity River is likely under-saturated during summer and fall months (National Marine Fisheries Service 2006). The construction period identified above would completely avoid the spawning period for Coho salmon; therefore, direct impacts on adult Coho salmon or their eggs/alevins (yolk-sac fry) would not occur.

A small, temporary, but uncertain level of stranding of Coho salmon fry could occur on the newly constructed inundation surfaces during rapidly receding flood-flow periods in the winter and early spring when fry are emerging. Although stranding of fry under such receding flood conditions occurs naturally, the constructed features could increase the potential for stranding. As fluvial channel migration occurs through these surfaces, the potential for fry stranding is expected to equilibrate to that of a natural stranding risk. Table 3-4 in the EA/IS shows the amount of WUA fry and presmolt salmonid habitat that would be provided after implementation of the Project as flows increase through the project reach. Table 3-5 of the EA shows the percent increase in fry and presmolt habitat that would result from the Project.

The Project would result in an increase in rearing habitat in the project reach over a range of flows. These increases in habitat for extremely young fish can be critical for their survival. The project is not expected to have a long-term effect on the amount or utility of holding habitat for adult salmonids. These beneficial effects will also apply to varying degrees to other aquatic organisms that use habitat in this reach.

7.3.1 Geomorphic Condition (Sediment Transport and Substrate Quality)

The 1-mile-long reach of the river in the project area is characterized by a relatively wide alluvial valley bottom, relatively low water-surface slopes, low sinuosity, and simple channel geometry. The channel is almost

exclusively single-thread, with some evidence of riffles, bars, or similar topographic elements. Sinuosity is low, with channel curvature being driven by valley confinement. The relatively low slope and simple channel geometry that dominates the area are linked to historical mining activities.

The channel through Chapman Ranch before the implementation of Phase A is characterized as deeply incised into the mining debris and has a simple, canal-like morphology. For much of its length, the channel has been bound on one bank by tailings piles or flattened tailings terraces as much as 20 ft higher than the stream bed. On the other bank, the channel is confined by large, heavily-vegetated berms that developed along the pre-dam channel margin in the latter half of the 20th century. These berms reach heights of up to 15 ft above the stream bed, restricting the channel to an average width of 105 ft and ranging from 90–120 ft (this equates to flow confinement ranging between 493–7,155 cfs). Variability in channel width through this reach is low, as quantified by a standard deviation of 17.7 ft (a channel width range of 90–120 ft). After implementation of Phase A in 2019, the reach directly adjacent and downstream from the Project now has a functional lowered floodplain and meander/riffle/pool complexes that would be enhanced by the Phase B project.

The substrate in the Chapman Ranch site varies from sand to 19.7 in diameter. The Chapman Ranch site is mostly comprised of dredge material, with some areas of alluvial floodplain deposits, and ranges in size from silty sand to large cobbles.

Downstream of the Chapman Ranch Phase B site, Oregon Gulch discharged millions of cubic yards of mining debris from hydraulic mining at the LaGrange Mine on Oregon Mountain over 60 years ending in the 1930s. Massive aggradation during the period dominated by hydraulic mining was followed by large-scale dredge mining of the alluvial valley floor that continued into the 1950s. The channel and associated alluvial features of the Trinity River were dredged extensively, and the dredge tailing deposits are evident on the right side of the river throughout the project area. Essentially the floodplain soils in the area were removed by historic mining. Floodplain soils will be enhanced both via placement of materials during construction and as flows deposit sediment in newly lowered locations.

Flows in the Trinity River downstream from Trinity and Lewiston dams have been regulated since Trinity Dam was closed in 1960. Diversion of up to 90 percent of the Trinity River to the Sacramento River basin in the 1960s and 1970s led to substantial geomorphic changes in many locations along the Trinity River, with the predominant responses being channel narrowing and vegetative encroachment along the channel margins (USFWS and HVT 1999). Although flow regulation has certainly influenced current conditions, larger-scale historical mining impacts are also important drivers of recent geomorphic evolution in the project area.

A newly created side channel and expansion of floodplain inundation (in terms of both timing and area) would enhance the alluvial nature of this section of the river through removal of excess dredge tailings and soils that have accumulated over the years. Some fill would be placed within and along the floodplain to create bars and riffles, realign the main channel, and allow inundation of the floodplain at lower flows. Overall, increases in floodplain habitat and vegetation, expected as the project develops over time, will provide direct habitat benefits for fish and will also enhance invertebrate production that will serve as food for all aquatic species.

Surface and subsurface geology and soil conditions in the activity areas were evaluated as part of the design process, and the types of alluvial material (e.g., cobble, gravel, fines) available for the rehabilitation activities were characterized to determine how much material could be re-used on site. Where fill placement would occur, these areas would initially be exposed to water erosion from the river, particularly during high flow and flood events. Still, the newly created features are expected to stabilize after grading efforts are completed, initial

erosional events occur, and vegetation is re-established in disturbed areas. Sediment would be transported downstream to be deposited on downstream alluvial features as part of the natural riverine process. The overall effects on river geomorphology would benefit aquatic resources and result in more natural alluvial processes that would increase the size, amount, and complexity of alluvial features that support diverse aquatic habitat, as discussed further in the EA/IS.

7.3.2 Substrate Quality

Project construction will directly amend the floodplain substrate as historically mined areas will receive fines and wood augmentation. In addition, enhanced post-project floodplain topography will encourage the deposition of fines in upslope areas and the development of vegetation. The resultant vegetation will provide cover for fish, future wood structures, and invertebrate production to the river and the benefit of fishery resources.

7.3.3 Nutrient Cycling

The addition of large wood and other organic materials on all disturbed areas would increase nutrient cycling (addition of organic material) throughout the Project area. Placement of large wood and other organic material (chips, slash) and their subsequent decomposition will encourage nutrient recycling as aquatic invertebrates, saprotrophic fungi, and detritivores such as bacteria directly consume dead wood. In turn, these organisms will release nutrients by converting them into other forms of organic matter that may then be consumed by other organisms.

7.3.4 Condition of Aquatic Invertebrate, Amphibian, and Mollusk Habitat

The meander complex, lowered floodplains, side channel, and wood structures all increase the complexity of habitat available to amphibian and aquatic invertebrate species, including mollusk beds.

7.3.5 Species Composition and Diversity

The Project is expected to result in an increase in species composition and diversity and in habitat complexity in the Project reach. Activities included under the proposed action are intended to have beneficial effects on fisheries within the project area, and these benefits are expected to increase over time. While protecting high-quality holding and spawning habitat, as illustrated in Figure 2-1 of the EA, discussed in greater detail in Appendix D, Project Description, in-channel activities would:

- Increase channel complexity and shallow low-velocity refugia at a variety of flows and would provide an approximately 288 percent increase in fry and juvenile rearing habitat that meets criteria for depth, velocity, and cover.
- Construct riffles that would provide adult salmonid spawning areas and increase food resources (benthic macroinvertebrates) for fry and juvenile salmonids during critical winter and spring rearing periods.
- Develop pools that would provide holding habitat for adult salmonids, between 300 cfs and 4,500 cfs.
- Provide slow water refuge within lowered floodplains, side-channel and off-channel habitat features to provide fry and juvenile habitat at flows ranging between 700 cfs and 4,500 cfs.
- Increase channel sinuosity and channel complexity, providing fry and juvenile rearing opportunities at a wide range of flows over existing conditions.

8 FISH SPECIES POPULATION CONDITIONS

8.1 ANADROMOUS SALMONID FISH SPECIES

Anadromous adult fish spawning success will be improved in several ways. Floodplains that are constructed to be inundated at flows above 1,000 cfs and graded to ensure stranding does not occur offer refugia habitat for juvenile salmonids under flows between 1,000 and 6,000 cfs. The side channel would also offer refugia habitat under similar conditions. The meander complex would increase the amount of substrate suitable for spawning and rearing habitat, as well pools used for adult holding habitat. Placement of wood structures near spawning habitat would provide extensive cover from predators for adult anadromous fish during spawning activities. The sequestration of fine sediments around various wood structures is also expected to reduce the amount of fine sediment available for deposition within spawning areas.

8.2 RESIDENT FISH SPECIES

The construction of a meander complex, reduction of floodplain elevations to increase timing and extent of inundation, and development of a side-channel all offer opportunities to increase the success of spawning and rearing of aquatic organisms, including fish and other aquatic organisms (e.g., mussel beds), The placement of structured log jams and other large wood features throughout the Project area are expected to benefit both anadromous and resident adult fish spawning and juvenile fish rearing success in the Project reach.

8.3 SPECIES TRADITIONALLY USED BY, AND CULTURALLY IMPORTANT TO, NATIVE AMERICANS

The need to restore and maintain the natural production of anadromous fish in the mainstem Trinity River is derived in part from the federal government's trust responsibility to protect the fishery resources of the region's Indian tribes. The Trinity River Basin Fish and Wildlife Restoration Act of 1984 (Public Law 98-541) expressly acknowledges tribal interests in the basin's fishery resources by declaring that the measure of successful restoration of the Trinity River fishery includes the "ability of dependent tribal…fisheries" to participate fully, through enhanced in-river "harvest opportunities, in the benefits of restoration." In addition, the 1992 CVPIA specifically recognizes the federal trust responsibility regarding the Trinity River fishery. The project could potentially affect anadromous fish, non-anadromous fish, water, wildlife, vegetation, and overall riverine health; these impacts, in turn, could affect tribal cultures and economics.

Salmon, steelhead, sturgeon, and lamprey that spawn in the Trinity River pass through the Hoopa Valley and Yurok Reservations and are harvested in tribal fisheries. The fishing traditions of these tribes stem from practices that far pre-date the arrival of non-Indians. Accordingly, when the federal government established what are today the Hoopa Valley and Yurok Indian Reservations on the Trinity and lower Klamath Rivers, it reserved for the benefit of the Indian tribes of those reservations a right to the fish resources in the rivers running through them. The Yurok and Hoopa Valley tribes' federally reserved fishing rights entitle them to take fish for ceremonial, subsistence, and commercial purposes.

While the focus of the legal history surrounding Indian rights to resources has concentrated on water and fisheries, other resources, such as wildlife and vegetation, are also extremely important to the tribes, and the tribes have assessed that these resources are no less reserved. In the case of the Hoopa Valley and Yurok tribes, the decline in the health of the region's rivers has limited the availability of grasses and other plants essential to

traditional basketry, art, and medicine. Thus, while anadromous fish is the focus of the TRRP, other trust assets, such as vegetation, are embodied in the federal government's trust responsibility and, accordingly, need to be considered in the decision-making process. Table 7.17-1 of the Master EIR/EA (Regional Water Board and Reclamation 2009) lists 10 aquatic resources (fish species) and 12 terrestrial resources (e.g., willows, cottonwoods, wild grape, bulrush) that are considered trust assets protected on behalf of the Tribes of the Klamath/Trinity Region. These species would generally benefit from restoring historic floodplain functions as this project is intended to do.

Implementation of the Chapman Ranch Phase B Project would continue to support tribal trust assets. The short-term impacts described in sections of the EA/IS pertaining to geology, fluvial geomorphology, and soils; water quality; fishery resources; and vegetation, wildlife, and wetlands would occur if the project is implemented. These impacts are expected to be short term and outweighed by the overall benefits to Tribal trust assets gained through the implementation of the overall TRRP.

9 TIME FRAME OVER WHICH EFFECTS ARE LIKELY TO OCCUR

The proposed Project is expected to begin achieving its objectives immediately following Project implementation and continue to provide benefits to the habitat within the Project reach and downstream well into the future.

During Project implementation, insignificant amounts of turbidity are expected to occur in conjunction with in-channel and riverine activities due to excavation and placement of alluvial materials. These effects are expected to be ephemeral and would generally be confined to the area within and adjacent to the activity areas. Directly following implementation, the constructed meander complex and side-channel would provide habitat for adult and juvenile salmonids and other aquatic organisms. The first significant precipitation event following implementation is when stream flow and, therefore, flow patterns will be increased enough to inundate the expanded floodplain surfaces, providing refugia habitat for juvenile salmonids.

10 COMPARISON OF PROJECT ANALYSES TO MANAGEMENT GOALS

As described in Chapter 1 of the EA/IS, the Project supports specific resource goals of the Shasta-Trinity National Forest Land and Resource Management Plan[2] (LRMP) to "provide for the protection, maintenance and improvement of wild trout and salmon habitat," to "coordinate rehabilitation and enhancement of projects with cooperating agencies involved in the Model Steelhead Stream Demonstration Project Plan and the Trinity River Basin Fish and Wildlife Management Program," and to "identify and treat riparian areas that are in a degraded condition" (LRMP, pages 4-4 and 4-18). In so doing, the Project also meets LRMP guidelines to "design and implement fish and wildlife restoration and enhancement activities in a manner that contributes to attainment of Aquatic Conservation Strategy objectives (LRMP page 4-58), as well as the riparian management prescription objective that "fish habitats will be maintained and enhanced" (LRMP pages 4-58 and 4-59).

A portion of the Project occurs within the Riparian Reserve associated with the mainstem Trinity River. Riparian Reserves are contained within, and overlay, all Shasta-Trinity National Forest land allocations. The management direction, standards, and guidelines for Riparian Reserves override those of the land allocations they are included in. The BLM's Redding Field Office manages federal lands in the Trinity River Basin in accordance with its 1993 RMP and Record of Decision (RMP) (BLM 1993). The Trinity Management Area section of the RMP discusses the general condition of natural resources in the plan area and prescribes appropriate land use management for lands within the plan's jurisdiction, including BLM-managed lands at the Dutch Creek rehabilitation site. As part of its decision-making process, BLM must evaluate the consistency of the modified proposed action with the RMP, as amended.

In addition to the Forest Service LRMP and BLM RMP, the Wild and Scenic River Implementation Guide of July 31, 1996, cites the following pertinent (paraphrased) goals, both of which are met by implementation of the Project's activities:

- Protect the river's free-flowing character and protect or enhance its ORVs
- Maintain or improve water quality and quantity to meet fish habitat requirements

[2] USDA. 1995. Record of decision for the final environmental impact statement for the Shasta-Trinity National Forests. USDA, Forest Service, Shasta-Trinity National Forest.

11 SECTION 7 DETERMINATION

The Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile 82.8-83.8) Project (Phase B, Project) is a habitat restoration project located on National Forest System (NFS) Lands and lands managed by the Bureau of Land Management (BLM). An Environmental Assessment/Initial Study (EA/IS) was prepared by two federal agency co-leads—the Bureau of Reclamation's Trinity River Restoration Program (TRRP) and the BLM. The California Regional Water Quality Control Board (North Coast Region) serves as the state lead for compliance with the California Environmental Quality Act. The Forest Service, Shasta-Trinity National Forest, serves as a federal cooperating agency and must authorize all activities that will take place on NFS lands. Included in the EA/IS is an analysis of the Dutch Creek Project's consistency with the Wild and Scenic Rivers Act.

Based on the findings in the EA and Appendices, and taking into consideration the direction established by the Shasta-Trinity Land and Resource Management Plan and the BLM Resource Management Plan, we have determined that the Dutch Creek Project would have minimal short-term negative effects related to turbidity and immediate and long-term benefits to anadromous fish and their habitat. There will be no direct and adverse effects on free-flowing conditions, water quality, or the Outstandingly Remarkable Value of anadromous fisheries habitat.

The scale of the Dutch Creek Project is small when viewed at the watershed scale. It is an element of the TRRP's program to improve habitat for anadromous salmonids and other aquatic and riparian-dependent organisms within the 40-mile section of the Trinity River downstream of Lewiston Dam. Scenic values would not be degraded by the activities associated with the project; section 3.4 of the EA/IS provides additional information on visual resources and aesthetics. Additionally, the meander complex, lowered floodplains, side channel, and wood structures all increase the complexity of habitat available to riparian-dependent avian species.

Implementation of the Dutch Creek Project provides a net effect of protecting and enhancing river values by restoring natural characteristics of the river and improving habitat quality for fish and other aquatic organisms. The impacts on the free-flowing condition are minimized to the extent practicable. We have determined that there would be no direct and adverse effect on the river's free-flowing conditions, water quality, or Outstandingly Remarkable Values.

Jennifer Mata — Date
Redding Field Manager
Bureau of Land Management

Randy Moore — Date
Regional Forester
Pacific Southwest Region, USDA Forest Service

Appendix K – Summary of Cumulative Impacts

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APPENDIX K

Trinity River Channel Rehabilitation Site: Chapman Ranch Phase B (River Mile 83.5–83.8) Summary of Cumulative Impacts

Table K-1. Summary of Cumulative Impacts Considering Past, Present, and Reasonably Foreseeable Actions in the Trinity River Basin

Resource Area	Cumulative Impacts
Land Use	Implementation of the proposed action, in combination with other related projects, would not have a cumulative impact in terms of planning policies, nor would river rehabilitation activities result in cumulative effects in terms of local or federal land use planning policies.
Geomorphology and Soils	No significant cumulative impacts associated with geologic hazards, geomorphic processes, or erosional processes are anticipated to occur as a result of implementation of the proposed action in combination with other related projects. While previous TRRP projects (e.g., Lorenz Gulch) and periodic increases in flow regimes continued to increase channel complexity throughout the 40-mile reach, large fires throughout the Trinity River basin continue to influence flow and sediment regimes within the watershed. Appropriate implementation of environmental commitments, project design features, and CEQA-specific mitigation measures would reduce potential impacts to a less than significant level.
Hydrology and Flooding	Implementation of the proposed action in combination with other river rehabilitation activities would not have cumulatively considerable impacts on beneficial uses of the river or result in changes in the quantities of water available for any of those uses or that would cause flooding.
Water Quality	No significant cumulative impacts to water quality are anticipated to occur as a result of implementation of the proposed action in combination with other related projects and recent landscape-level changes as result of recent fires in Trinity County. The TRRP implementation schedule acknowledges the need to stagger implementation of channel rehabilitation projects along the 40-mile reach of the river to ensure that project sites have the opportunity to stabilize and revegetate. Individually, these activities would result in short-term, temporary effects on water quality. Appropriate implementation of environmental commitments, project design features, and CEQA-specific mitigation measures would reduce potential impacts to a less than significant level.
Fishery Resources	No significant adverse cumulative impacts to fisheries resources are anticipated to occur as a result of implementation of the proposed action. The effect of the proposed action, in conjunction with other projects and programs such as the Five Counties Salmonid Restoration effort, is expected to be beneficial in terms of the rehabilitation of habitat and fisheries resources. Implementation of the proposed action as designed, in conjunction with CEQA-specific mitigation measures, would benefit, rather than adversely affect, the fishery resources of the Trinity River in the long term.
Vegetation, Wildlife, and Wetlands	No significant cumulative impacts to vegetation, wildlife, and wetlands are anticipated to occur as a result of implementation of the proposed action in combination with other related projects. The proposed action as designed, in conjunction with CEQA-specific mitigation measures, would benefit rather than adversely affect vegetation, wildlife, and wetlands in the long term, as would most of the other related projects and programs (e.g., Five Counties Salmonid Restoration). Implementation of the proposed action would contribute to long-term ecological benefits in terms of vegetation, wildlife, and wetlands.

Resource Area	Cumulative Impacts
Recreation	No significant cumulative impacts to recreational resources are anticipated to occur as a result of implementation of the proposed action in combination with other related projects. Benefits to recreational values may be achieved through implementation of the TRRP over time.
Wild and Scenic Rivers	No significant adverse cumulative impacts to the outstandingly remarkable values (ORV) of the Recreational section of the Trinity River designated by BLM are anticipated to occur as a result of implementation of the proposed action. The effects of the proposed action, in conjunction with other projects and programs such as the Five Counties Salmonid Restoration effort, is expected to be beneficial to the ORVs that existed on the date of designation (e.g., fisheries resources). Implementation of the proposed action as designed, in conjunction with CEQA-specific mitigation measures, would benefit, rather than adversely affect, the ORVSs in this section of the Trinity River protected under both the federal and state Wild and Scenic Rivers Acts in the long term.
Cultural Resources	No significant cumulative impacts to cultural resources are anticipated to occur as a result of implementation of the proposed action. The environmental commitments, project design features, and implementation of prescribed CEQA-specific mitigation measures (e.g., surveys of potential impact areas by a professional archaeologist prior to construction, protection of potentially significant cultural sites, and coordination with local tribes) consistent with the Programmatic Agreement between the Bureau of Reclamation and the California State Historic Preservation Officer would adequately address potential impacts, including cumulative impacts.
Air Quality	No significant cumulative impacts to air quality are anticipated to occur as a result of implementation of the proposed action. North Coast Unified Air Quality Management District requirements would be addressed by implementation of environmental commitments, project design features, and prescribed CEQA-specific mitigation measures. The proposed action, in conjunction with the other projects and programs occurring within the Trinity River Basin, would contribute cumulatively to global climate change. Thus, the proposed action would contribute to an adverse cumulative contribution to global climate change. Implementation of the proposed action in conjunction with mitigation measures would reduce the cumulative contribution to global climate change to a less than significant level.
Aesthetics	No significant cumulative impacts to visual resources are anticipated to occur as a result of implementation of the proposed action. Implementation of the proposed action would benefit, rather than adversely affect, visual resources in the long term, as would most of the other related projects described in the cumulative effects analysis in the Master EIR.
Noise	No significant cumulative impacts related to noise are anticipated through implementation of the proposed action in combination with other projects. Reclamation would coordinate the implementation of other restoration projects to ensure that construction noise is minimized through project scheduling.
Transportation/ Traffic Circulation	No significant cumulative impacts related to transportation/traffic circulation are anticipated through the implementation of the proposed action in combination with other related projects. Traffic increases would be localized and temporary.